

TSD File Inventory Index

Date: June 12, 2001

Initial: CMK/eww

Facility Name: <u>Safety-Kleen Systems, Inc. (Chicago Recycle Center)</u>			
Facility Identification Number: <u>ILD 005 450 697</u>			
A.1 General Correspondence <u>A.1.1-A.1.5</u>	1	B.2 Permit Docket (B.1.2)	
A.2 Part A / Interim Status <u>A.2</u>	1	.1 Correspondence <u>B.1.1</u>	1
.1 Correspondence	Y	.2 All Other Permitting Documents (Not Part of the ARA) <u>B.1.2(4), B.1.3, B.1.5</u>	6
.2 Notification and Acknowledgment	Y	C.1 Compliance - (Inspection Reports) <u>C.1(3)</u>	3
.3 Part A Application and Amendments	Y	C.2 Compliance/Enforcement <u>C.2</u>	1
.4 Financial Insurance (Sudden, Non Sudden)		.1 Land Disposal Restriction Notifications <u>B.2.1</u>	1
.5 Change Under Interim Status Requests		.2 Import/Export Notifications <u>C.2.2</u>	1
.6 Annual and Biennial Reports		C.3 FOIA Exemptions - Non-Releasable Documents <u>C.3</u>	1
A.3 Groundwater Monitoring		D.1 Corrective Action/Facility Assessment	
.1 Correspondence		.1 RFA Correspondence	
.2 Reports <u>A.3.4</u>	1	.2 Background Reports, Supporting Docs and Studies	
A.4 Closure/Post Closure		.3 State Prelim. Investigation Memos	
.1 Correspondence <u>A.4.1-A.4.5</u>	1	.4 RFA Reports <u>D.1.4</u>	1
.2 Closure/Post Closure Plans, Certificates, etc <u>See A.4.1</u>		D.2 Corrective Action/Facility Investigation	
A.5 Ambient Air Monitoring		.1 RFI Correspondence	
.1 Correspondence		.2 RFI Workplan	
.2 Reports		.3 RFI Program Reports and Oversight	
B.1 Administrative Record <u>B.1</u>	1	.4 RFI Draft /Final Report	

Total - 29

.5 RFI QAPP		.7 Lab data, Soil Sampling/Groundwater	
.6 RFI QAPP Correspondence		.8 Progress Reports	
.7 Lab Data, Soil Sampling/Groundwater D.2.7(6)	6	D.5 Corrective Action/Enforcement	
.8 RFI Progress Reports		.1 Administrative Record 3006(h) Order	
.9 Interim Measures Correspondence		.2 Other Non-AR Documents	
.10 Interim Measures Workplan and Reports		D.6 Environmental Indicator Determinations	
D.3 Corrective Action/Remediation Study		.1 Forms/Checklists	
.1 CMS Correspondence		E. Boilers and Industrial Furnaces (BIF)	
.2 Interim Measures		.1 Correspondence	
.3 CMS Workplan		.2 Reports	
.4 CMS Draft/Final Report		F Imagery/Special Studies (Videos, photos, disks, maps, blueprints, drawings, and other special materials.)	1
.5 Stabilization		G.1 Risk Assessment	
.6 CMS Progress Reports		.1 Human/Ecological Assessment	
.7 Lab Data, Soil Sampling/Groundwater D.3.7	1	.2 Compliance and Enforcement	
D.4 Corrective Action Remediation Implementation		.3 Enforcement Confidential	
.1 CMI Correspondence		.4 Ecological - Administrative Record	
.2 CMI Workplan		.5 Permitting	
.3 CMI Program Reports and Oversight		.6 Corrective Action Remediation Study	
.4 CMI Draft/Final Reports		.7 Corrective Action/Remediation Implementation	
.5 CMI QAPP		.8 Endangered Species Act	
.6 CMI Correspondence		.9 Environmental Justice	

Note: Transmittal Letter to Be Included with Reports.
Comments: _____



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

217/524-3300 ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

April 23, 2007

Certified Mail
7004 2510 0001 8616 6621

Safety Kleen
Attn: Environmental Coordinator
1445 West 42nd Street
Chicago, Illinois 60609

Re: 0316000053 -- Cook County
Safety Kleen Systems (Chicago)
ILD005450697
RCRA Permit

Dear Environmental Coordinator:

The Illinois EPA and the United States Environmental Protection Agency (U.S. EPA) have compiled a list of all facilities deemed appropriate and important to address using the Resource Conservation and Recovery Act's (RCRA) Corrective Action Program. Because this set of 3,880 facilities has national remediation goals which will culminate in the year 2020, it is referred to as the 2020 Corrective Action Universe. Your facility is part of this 2020 Universe.

As a result, a final remedy needs to be in place (i.e., remedy construction completed) at your facility by 2020 (although actual attainment of cleanup goals through remedy implementation may take a while longer). If we have not already done so, we will be working with you to develop a plan and a schedule that achieves this goal before 2020.

Your facility has been included in the 2020 Universe because one or more of the following is true:

- It has a RCRA permit obligation,
- Illinois EPA and U.S. EPA agreed that it needs to be addressed under the RCRA Corrective Action Program, as it at one time operated a hazardous waste management unit subject to the interim status or permit requirements of RCRA.


Inclusion on this list does not imply failure on your part to meet any legal obligation, nor should it be construed as an adverse action against you. It only means that Illinois EPA and U.S. EPA have identified your facility – and every other facility in the 2020 Universe – as needing to complete RCRA Corrective Action if they have not done so already. Our national program goal is to address these cleanup obligations before the end of 2020. Accordingly, progress will be tracked for each facility in the 2020 Universe. The list of facilities will be posted on our web site at <http://www.epa.gov/correctiveaction> in the near future.

Page 2

Illinois EPA will work to address remediation concerns at your facility in a manner consistent with your plans for the property. There are a variety of options available for completing the required remediation efforts at your facility, ranging from participation in Illinois EPA's Site Remediation Program to establishment of an Administrative Order on Consent with USEPA under Section 3008(h) of RCRA.

Illinois EPA would like to schedule a meeting with you in the near future to discuss remedial activities at your facility and achievement of the goal mentioned in the second paragraph of this letter. Please contact James K. Moore, P.E. of my staff at 217/524-3295 if you have any questions regarding this letter and to schedule a meeting to discuss the contents of this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen F. Nightingale", written in a cursive style.

Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:JKM:bjh\072572s.dot

cc: Hak Cho, USEPA, Region 5

B-121-CA-1

cc: Maywood
USEPA

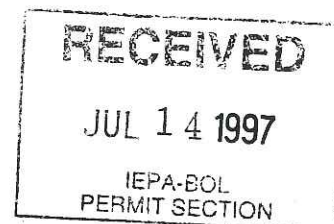
TG
SKM
MFA



July 11, 1997

Fed Ex Tracking No.: 266 5333 781

Mr. Edwin Bakowski, P.E.
Manager Permit Section #3
Illinois Environmental Protection Agency
Bureau of Land
Division of Land Pollution Control
2200 Churchill Road
Springfield, Illinois 62706



Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
Eighth Quarterly Report
Phase II RCRA Facility Investigation
Reporting Period: 1 April, 1997 - 30 May, 1997

Dear Mr. Bakowski:

This letter documents the activities performed as part of the Phase II RCRA Facility Investigation (RFI) for the Safety-Kleen CRC for the period of April 1 through June 30, 1997 (Eighth Quarterly Report). As specified in Item #5 in the July 7, 1995 IEPA qualified approval letter to the March 31, 1995 Phase II RCRA Facility Investigation Work Plan, the following summary includes: (a) an estimate of the percentage of the completed investigation; (b) a summary of the activities completed during this reporting period; (c) summaries of all actual or proposed changes to the Work Plan or its implementation; (d) summaries of all actual or potential problems encountered during the reporting period; (e) proposals for correcting any problems; (f) projected work anticipated for the next reporting period; and (g) other information or data as requested in writing by the Division of Land Pollution Control (DLPC). This report is submitted in compliance with the July 15, 1997 deadline for the work progress/project status quarterly report.

OVERVIEW

The Phase II field investigations began in September 1995, and additional Phase II investigations were conducted in August, 1996 in accordance with the approved Technical Memorandum and Phase II Work Plan. The Phase II RFI report was submitted to IEPA on February 12, 1997. The data and evaluations from the May 30, 1997 static water level event are included as attachments to this report. The Phase II field investigations are 100% complete and the reporting is 100% complete with the submittal of this quarterly report.

ACTIVITIES FOR REPORTING PERIOD

IEPA approval of the November 1995 RFI Phase II Interim Technical Memorandum was received on June 24, 1996. Safety-Kleen completed all additional field investigations in August, 1996, as described in the Phase II Work Plan, along with the approved additional field investigations proposed in the Interim Technical Memorandum. The remaining work required the completion of a full year of quarterly static water level measurements, which were initiated after completion of all monitoring well and piezometer installations. All four quarterly static water level measurements have been conducted to date. The field activities, data evaluations and reporting conducted during this reporting period are summarized as follows:

Collect Quarterly Static Water Level Data

On May 30, 1997, a full round of static water level data was collected from all existing site monitoring wells and piezometers P1A and P2A, in accordance with the approved Phase II Work Plan and Technical Memorandum. This was the fourth of four quarterly events that were specified in the Work Plan.

Data Evaluation and Reporting

The Seventh Quarterly Report, dated April 11, 1997, was submitted to IEPA in accordance with the April 15, 1997 deadline for the work progress/project status quarterly report.

The Phase II RFI report was submitted to IEPA on February 12, 1997, in accordance with the February 15 deadline stipulated in Item #1 in the June 17, 1996 IEPA approval letter to the November, 1995 Technical Memo. The data and evaluations for the May 30, 1997 static water level monitoring event are included as attachments to this report.

PROBLEMS/SOLUTIONS AND ACTUAL OR PROPOSED CHANGES TO WORK PLAN

No problems were encountered during this reporting period.

ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

The Phase II field investigations are 100% complete and the reporting is 100% complete with the submittal of this quarterly report. No further activities and reporting are planned. We await IEPA's approval of the Phase II RFI Report, submitted to IEPA in February, 1997. As stated on page 36 of the February, 1997 Phase II RFI Report, when IEPA's review of the Phase II RFI Report is complete, Safety-Kleen proposes to meet with IEPA to discuss and develop the direction of future corrective actions (if necessary) at the site. Safety-Kleen believes that discussions with IEPA on the direction and scope of future activities would streamline the process and provide for focused and efficient future efforts. Specific issues that would be discussed may include: use of the Title 35 Part 742 TACO Rules; and development of candidate alternatives.

If you have any questions or comments about this report, please contact either me at 847-468-2216 or Cathy Whiting of LTI at 313-332-1200.

Sincerely,
Safety-Kleen Corp.



Anne M. Lunt
Senior Project Manager-Remediation

Enclosure

cc: Keith Marcott, Safety-Kleen Corp.
Alfred Aghaiepour, Safety-Kleen CRC
David J. Reynolds, City of Chicago
Bob Burke, Safety-Kleen Dolton RC
Cathy Whiting, LTI

ATTACHMENT A:

**May 30, 1997 Static Water Level Data, Vertical Gradients Data
and Potentiometric Surface Map**

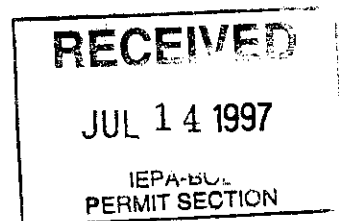


TABLE 1. HISTORIC STATIC WATER LEVEL AND WELL CONSTRUCTION DATA
Safety-Kleen, Chicago Recycle Center

WELL ID.	P1	P1A	P2	P2A	P3	P4**	MW1	MW2	MW3	MW4	MW5	MW6
Top of Casing Elevation (ft.) [^]	---	---	594.82	---	595.02	594.84	594.02	593.87	593.21	---	---	---
Top of Casing Elevation (ft.) [^]	596.63	---	595.26	---	595.44	---	594.44	594.30	593.61	597.45	597.43	594.26
Top of Casing Elevation (ft.) [^]	---	596.73	---	596.83	---	---	---	---	---	594.28	594.12	---
Ground Elevation (ft.) [^]	---	---	593.25	---	593.19	593.54	594.08	594.19	593.36	---	---	---
Ground Elevation (ft.) [^]	594.10	---	593.72	---	594.44	---	594.91	594.55	593.95	594.69	594.49	594.62
Ground Elevation (ft.) [^]	---	593.17	---	593.87	---	---	---	---	---	594.61	594.48	---
Well Depth (ft. from top of casing) [^]	6.00	13.00	6.00	8.00	---	---	9.21	10.24	10.34	12.68	12.75	9.53
Screen Bottom Elevation (ft.) [^]	590.63	580.17	589.26	585.87	589.44	588.84	585.23	584.06	583.27	584.77	584.68	584.73
STATIC LEVEL DATA*	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.
22-Oct-91	---	---	---	---	---	---	---	---	---	---	---	---
7-Nov-91	---	---	591.92	---	---	592.08	---	---	---	---	---	---
16-Dec-93	3.67	592.96	---	---	---	591.35	---	591.75	---	590.48	---	---
14-Feb-94***	---	---	4.13	---	4.29	591.15	---	590.31	2.83	590.78	6.91	590.52
25-May-94	---	---	4.51	---	5.63	589.81	---	590.62	3.81	589.80	8.13	589.30
4-Oct-94	---	---	---	---	---	---	5.61	590.66	2.73	590.88	6.54	590.89
14-Aug-96	4.33	592.30	4.12	7.83	---	---	6.04	590.62	2.95	590.66	6.85	590.58
14-Nov-96	dry	4.99	591.74	5.55	4.63	590.81	5.50	591.61	2.81	590.80	3.01	591.11
28-Feb-97	2.92	593.71	2.71	4.30	dry	---	5.57	591.76	2.72	590.89	3.51	590.61
30-May-97	dry	5.51	591.22	5.87	3.53	591.91	5.16	592.87	2.58	591.03	1.70	592.42
			4.44	590.82	4.53	590.91	5.63	591.36	2.70	590.91	3.35	590.77
												3.45
												590.81

* measured relative to top of casing notch for post-1991 static level data

** casing damaged sometime prior to December 1993

*** statics for P-2 and P-3 measured on 16 Feb, 1994; no reading taken for P-1 because of an obstruction

^ surveyed 1991

^^ surveyed December, 1993

^^^ As measured December 16, 1993; except for P1, P2, P3, P4, which were installed with 3' screens and 3' riser pipe

^^^^ surveyed September, 1996 (after MW11-MW14 were installed and after MW4, MW5 and MW8 were reconstructed to flushmounts)

TABLE 1. HISTORIC STATIC WATER LEVEL AND WELL CONSTRUCTION DATA
Safety-Kleen, Chicago Recycle Center

WELL ID.	MW7	MW8	MW9	MW10	MW11	MW12	MW13	MW14
Top of Casing Elevation (ft.) ^{***}	597.78	596.61	596.72	594.23	---	---	---	---
Top of Casing Elevation (ft.) ^{^^}	597.78	593.71	---	---	595.42	593.91	593.17	593.69
Ground Elevation (ft.) ^{^^}	---	---	---	---	---	---	---	---
Ground Elevation (ft.) ^{^^}	594.74	593.92	594.03	594.58	---	---	---	---
Ground Elevation (ft.) ^{^^}	594.81	594.01	---	---	595.80	594.40	593.46	594.09
Well Depth (ft. from top of casing) ^{^^}	13.23	13.58	12.99	8.49	10.00	8.00	8.00	12.00
Screen Bottom Elevation (ft.) ^{^^}	584.55	583.03	583.73	585.74	585.80	586.40	585.46	582.09
STATIC LEVEL DATA*	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.	reading elev.
22-Oct-91	---	---	---	---	---	---	---	---
7-Nov-91	---	---	---	---	---	---	---	---
16-Dec-93	6.78 591.00	5.34 591.27	5.85 590.87	3.05 591.18	---	---	---	---
14-Feb-94***	7.00 590.78	5.98 590.63	6.95 589.77	4.61 589.62	---	---	---	---
25-May-94	6.73 591.05	5.22 591.39	5.87 590.85	3.00 591.23	---	---	---	---
4-Oct-94	7.21 590.57	5.59 591.02	6.66 590.06	3.30 590.93	---	---	---	---
14-Aug-96	6.69 591.09	2.25 591.46	6.01 590.71	2.96 591.27	4.48 590.94	3.61 590.30	2.48 590.69	4.38 589.31
14-Nov-96	6.88 590.90	2.52 591.19	5.76 590.96	3.08 591.15	4.56 590.86	3.50 590.41	2.49 590.68	2.88 590.81
28-Feb-97	6.30 591.48	1.73 591.98	4.61 592.11	2.51 591.72	4.48 590.94	2.95 590.96	2.31 590.86	2.08 591.61
30-May-97	6.98 590.80	2.32 591.39	5.91 590.81	3.00 591.23	4.60 590.82	3.55 590.36	2.58 590.59	2.72 590.97

* measured relative to top of casing notch for post-1991 static level data

** casing damaged sometime prior to December 1993

*** statics for P-2 and P-3 measured on 16 Feb, 1994; no reading taken for P-1 because of an obstruction

^ surveyed 1991

^^ surveyed December, 1993


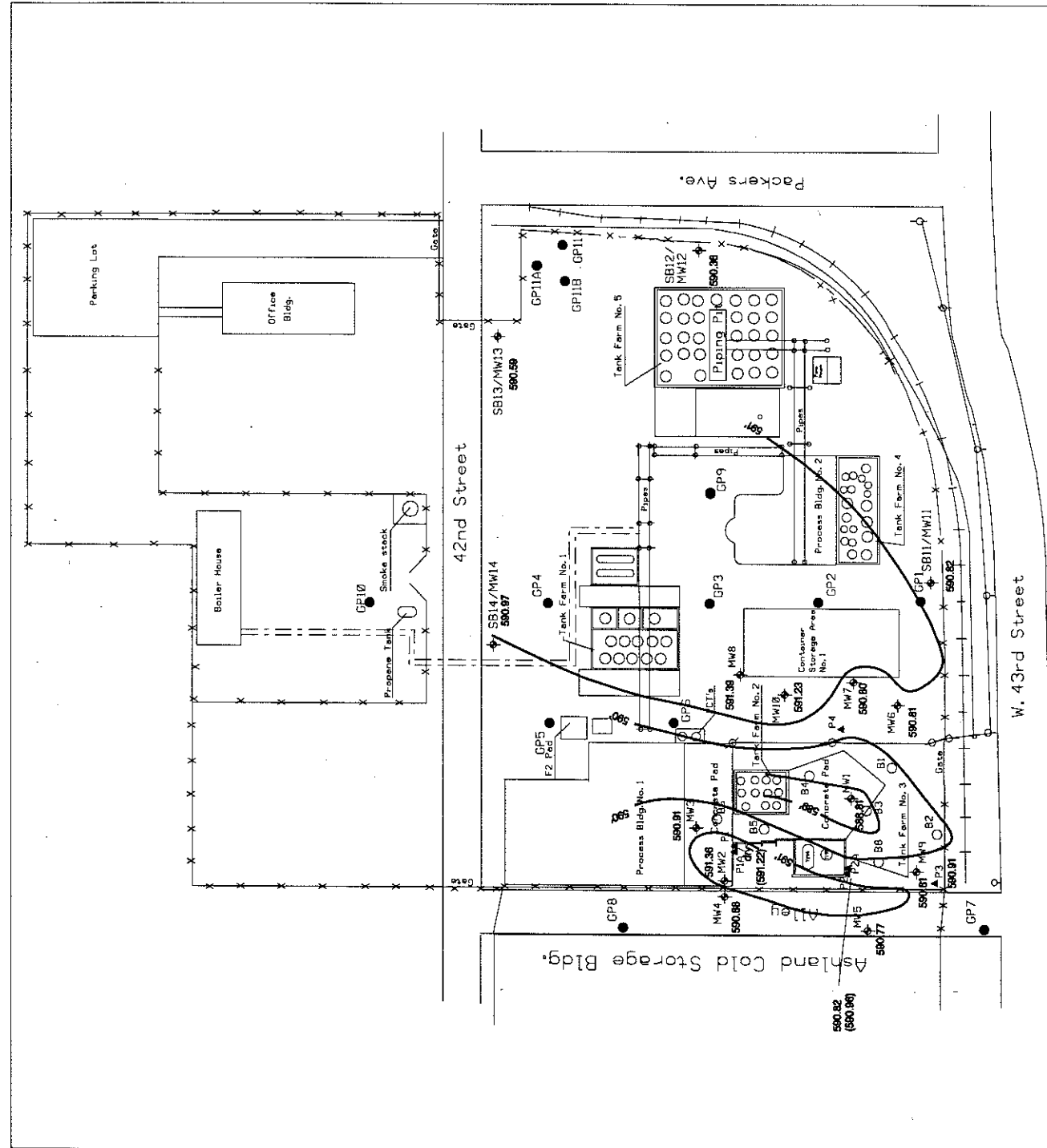
^^^ As measured December 16, 1993; except for P1, P2, P3, P4, which were installed with 3' screens and 3' riser pipe

^^^^ surveyed September, 1996 (after MW11-MW14 were installed and after MW4, MW5 and MW8 were reconstructed to flushmounts)

GROUNDWATER VERTICAL GRADIENTS
Safety-Kleen, Chicago Recycle Center

Well Cluster	Relative Stratigraphic Location of Screen	Screen Center Elevation (ft)	Static Water Level Elevation (ft): 8/14/96	Static Water Level Elevation (ft): 2/28/97	Static Water Level Elevation (ft): 5/30/97
P1	Clay/Silt zone	592.13	592.30	593.71	dry
P1A	Clay/Silt zone	580.67	588.84	591.87	591.22
	difference---	11.46	3.46	1.84	---
	gradient (ft/ft)***		0.30	0.16	---
P2	Clay/Silt zone	590.76	591.14	592.55	590.82
P2A	Clay/Silt zone	586.37	589.00	592.53	590.96
	difference---	4.39	2.14	0.02	-0.14
	gradient (ft/ft)***		0.49	0.005	-0.03

* positive value indicates a downward gradient; negative value indicates an upward gradient



LTI ENVIRONMENTAL ENGINEERING
A Division of Limno-Tech, Inc.
501 Avis Dr, Ann Arbor, Michigan 48108



April 11, 1997

Fed Ex Tracking No.: 120 6850 933

Mr. Edwin Bakowski, P.E.
Manager Permit Section #3
Illinois Environmental Protection Agency
Bureau of Land
Division of Land Pollution Control
2200 Churchill Road
Springfield, Illinois 62706

Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
Seventh Quarterly Report
Phase II RCRA Facility Investigation
Reporting Period: 1 January, 1997 - 31 March, 1997

APR 14 1997

Dear Mr. Bakowski:

This letter documents the activities performed as part of the Phase II RCRA Facility Investigation (RFI) for the Safety-Kleen CRC for the period of January 1 through March 31, 1997 (Seventh Quarterly Report). As specified in Item #5 in the July 7, 1995 IEPA qualified approval letter to the March 31, 1995 Phase II RCRA Facility Investigation Work Plan, the following summary includes: (a) an estimate of the percentage of the completed investigation; (b) a summary of the activities completed during this reporting period; (c) summaries of all actual or proposed changes to the Work Plan or its implementation; (d) summaries of all actual or potential problems encountered during the reporting period; (e) proposals for correcting any problems; (f) projected work anticipated for the next reporting period; and (g) other information or data as requested in writing by the Division of Land Pollution Control (DLPC). This report is submitted in compliance with the April 15, 1997 deadline for the work progress/project status quarterly report.

OVERVIEW

The Phase II field investigations began in September 1995, and additional Phase II investigations were conducted in August, 1996 in accordance with the approved Technical Memorandum and Phase II Work Plan. The Phase II RFI report was submitted to IEPA on February 12, 1997. The data and evaluations from the February 28, 1997 static water level event are included as attachments to this report. We estimate that the Phase II field investigations are approximately 95% complete and the reporting is approximately 95% complete as of March 31, 1997.

ACTIVITIES FOR REPORTING PERIOD

IEPA approval of the November 1995 RFI Phase II Interim Technical Memorandum was received on June 24, 1996. Safety-Kleen completed all additional field investigations in August, 1996, as described in the Phase II Work Plan, along with the approved additional field investigations proposed in the Interim Technical Memorandum. The remaining work requires the completion of a full year of quarterly static water level measurements, which were to be initiated after completion of all monitoring well and piezometer installations. Three of the four quarterly static water level measurements have been conducted to date. The field activities, data evaluations and reporting conducted during this reporting period are summarized as follows:

Collect Quarterly Static Water Level Data

On February 28, 1997, a full round of static water level data was collected from all existing site monitoring wells and piezometers P1A and P2A, in accordance with the approved Phase II Work Plan and Technical Memorandum. This was the third of four quarterly events that were specified in the Work Plan.

Data Evaluation and Reporting

The Sixth Quarterly Report, dated January 10, 1997, was written and submitted to IEPA in accordance with the January 15, 1997 deadline for the work progress/project status quarterly report.

The Phase II RFI report was submitted to IEPA on February 12, 1997, in accordance with the February 15 deadline stipulated in Item #1 in the June 17, 1996 IEPA approval letter to the November, 1995 Technical Memo. The data and evaluations for the February 28, 1997 static water level monitoring event are included as attachments to this report.

PROBLEMS/SOLUTIONS AND ACTUAL OR PROPOSED CHANGES TO WORK PLAN

No problems were encountered during this reporting period.

ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Collect Quarterly Static Water Level Data

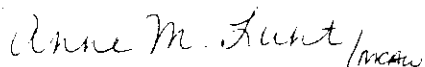
As stipulated in the Phase II Work Plan, after installation of the two piezometers and the four additional proposed monitoring wells, static water level data will be collected from all site wells quarterly for one year. The first three quarterly static water level events were conducted on August 14 and November 14, 1996, and February 28, 1997. The fourth and final event will be conducted in May, 1997.

Data Evaluation and Reporting

The information collected and evaluated from the fourth and final quarterly static water level event will be reported in the July, 1997 (eighth and final) quarterly report.

If you have any questions or comments about this report, please contact either me at 847-468-2216 or Cathy Whiting of LTI at 313-332-1200.

Sincerely,
Safety-Kleen Corp.



Anne M. Lunt
Senior Project Manager-Remediation

Enclosure

cc: Keith Marcott, Safety-Kleen Corp.
Alfred Aghaiepour, Safety-Kleen CRC
David J. Reynolds, City of Chicago
Bob Burke, Safety-Kleen Dalton RC
Cathy Whiting, LTI

ATTACHMENT A:

**February 28, 1997 Static Water Level Data, Vertical Gradients Data
and Potentiometric Surface Map**

TABLE 1. HISTORIC STATIC WATER LEVEL AND WELL CONSTRUCTION DATA
Safety-Kleen, Chicago Recycle Center

[illegible]

* measured relative to top of casing notch for post-1991 static level data

** casing damaged sometime prior to December 1993

*** statics for P-2 and P-3 measured on 16 Feb, 1994; no reading taken for P-1 because of an obstruction

^ surveyed 1991

^W surveyed December, 1993.

As measured December 16, 1993; except for P1, P2,P3, P4, which were installed with 3' riser pipe

was measured December 10, 1993, except for 1, 2, 3, 4, which were assumed that 3 persons and 1 new pipe was surveyed September, 1996 (after MW11-MW14 were installed and after MW4, MW5 and MW8 were reconstructed to flushmounts)

APR 14 1997
FERNWOOD
PERMIT SECTION

TABLE 1. HISTORIC STATIC WATER LEVEL AND WELL CONSTRUCTION DATA
Safety-Kleen, Chicago Recycle Center

WELL ID	MW7	MW8	MW9	MW10	MW11	MW12	MW13	MW14
Top of Casing Elevation (ft.)^	597.78	596.61	596.72	594.23	---	---	---	---
Top of Casing Elevation (ft.)^	597.78	593.71	---	---	595.42	593.91	593.17	593.69
Top of Casing Elevation (ft.)^	---	---	---	---	---	---	---	---
Ground Elevation (ft.)^	594.74	593.92	594.03	594.58	---	---	---	---
Ground Elevation (ft.)^	594.81	594.01	---	---	595.80	594.40	593.46	594.09
Well Depth (ft. from top of casing)^	13.23	13.58	12.99	8.49	10.00	8.00	8.00	12.00
Screen Bottom Elevation (ft.)^	584.55	583.03	583.73	585.74	585.80	586.40	585.46	582.09
STATIC LEVEL DATA*	reading elev	reading elev	reading elev	reading elev	reading elev	reading elev	reading elev	reading elev
22-Oct-91	---	---	---	---	---	---	---	---
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16-Dec-93	6.78 591.00 5.34 591.27 5.85 590.87 3.05 591.18	---	---	---	---	---	---	---
14-Feb-94***	7.00 590.78 5.98 590.63 6.95 589.77 4.61 589.62	---	---	---	---	---	---	---
25-May-94	6.73 591.05 5.22 591.39 5.87 590.85 3.00 591.23	---	---	---	---	---	---	---
4-Oct-94	7.21 590.57 5.59 591.02 6.66 590.06 3.30 590.93	---	---	---	---	---	---	---
14-Aug-96	6.69 591.09 2.25 591.46 6.01 590.71 2.96 591.27	---	---	---	---	---	---	---
14-Nov-96	6.88 590.90 2.52 591.19 5.76 590.96 3.08 591.15	---	---	---	---	---	---	---
28-Feb-97	6.30 591.48 1.73 591.98 4.61 592.11 2.51 591.72	---	---	---	---	---	---	---

* measured relative to top of casing notch for post-1991 static level data

** casing damaged sometime prior to December 1993

*** statics for P-2 and P-3 measured on 16 Feb, 1994; no reading taken for P-1 because of an obstruction

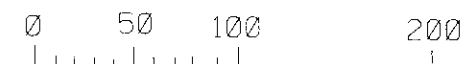
^ surveyed 1991

^ surveyed December, 1993

^ As measured December 16, 1993, except for P1, P2, P3, P4, which were installed with 3' screens and 3' riser pipe
 ^ surveyed September, 1996 (after MW11-MW14 were installed and after MW4, MW5 and MW8 were reconstructed to flushmounts)

GROUNDWATER VERTICAL GRADIENTS
Safety-Kleen, Chicago Recycle Center

Well Cluster	Relative Stratigraphic Location of Screen	Screen Center Elevation (ft)	Static Water Level Elevation (ft): 8/14/96	Static Water Level Elevation (ft): 2/28/97
P1	Clay/Silt zone	592.13	592.30	593.71
P1A	Clay/Silt zone	580.67	588.84	591.87
	difference---	11.46	3.46	1.84
	gradient (ft/ft)***		0.30	0.53
P2	Clay/Silt zone	590.76	591.14	592.55
P2A	Clay/Silt zone	586.37	589.00	592.53
	difference---	4.39	2.14	0.02
	gradient (ft/ft)***		0.49	0.01



Legend

- Building or Street Outline
- Concrete Pad
- Overhead Line or Pipe
- Fenceline
- MW8 Monitoring Well
- GP4 Geoprobe Sampling Location
- B1 Soil Boring Location (Canonie, 1991)
- PIA New Piezometer Location (PIA, P2A)

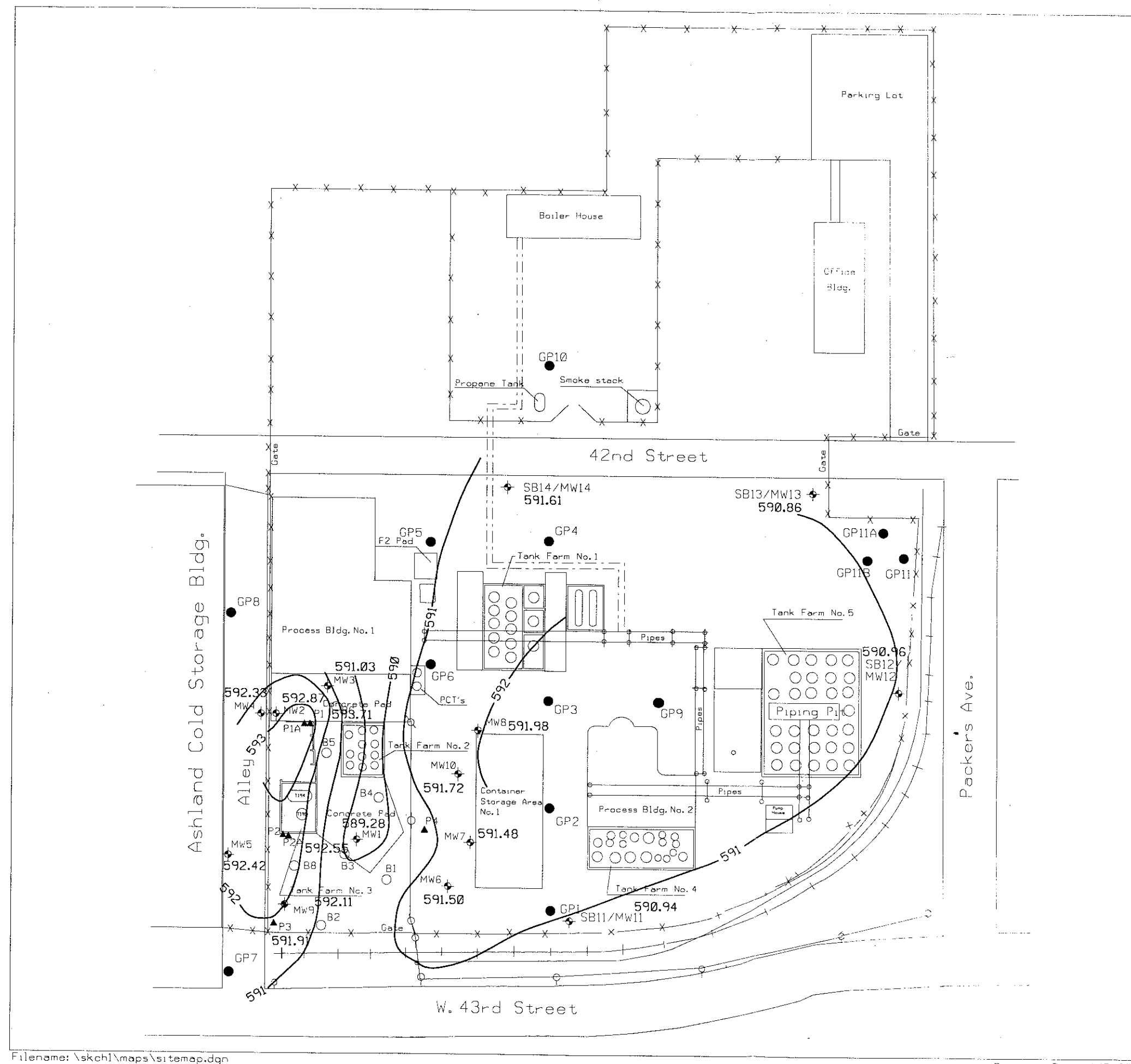
SAFETY-KLEEN CORP.
Chicago Recycle Center

Potentiometric Surface Map February 28, 1997



LTI ENVIRONMENTAL ENGINEERING
A Division of Immo-Tech, Inc.

501 Avis Dr, Ann Arbor, Michigan 48108



B-121-CA-2

cc: Maywood
USEPA

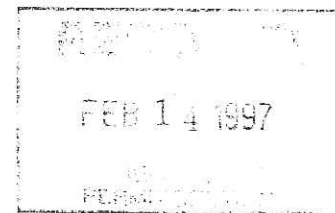
JEN
11/12



February 12, 1997

Fed. Ex. Tracking Number: 328 1266 055

Mr. Edwin Bakowski, P.E.
Manager, Permit Section #33
Indiana Environmental Protection Agency
Bureau of Land Management
Division of Land Pollution Control
2200 Churchill Road
Springfield, IL 62706



Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
Phase II RFI Report

Dear Mr. Bakowski:

We are pleased to submit to you the enclosed original and three copies of the Safety-Kleen Chicago Recycle Center (CRC) RCRA Facility Investigation (RFI) Phase II Report, which summarizes the results of investigations conducted at the CRC from September 1995 through August, 1996. This report (with attached certifications) is submitted in compliance with the February 15, 1997 deadline, as specified in Item #1 in the June 17, 1996 IEPA approval letter to the November, 1995 Technical Memorandum.

No further investigations are recommended to determine the amount and extent of soil and groundwater impacts at the CRC. The RFI is complete and has met the objectives of characterizing the nature, extent and distribution of impacts. When IEPA's review of the Phase II RFI Report is complete, Safety-Kleen proposes to meet with IEPA to discuss and develop the direction of future corrective activities (if necessary) at the site. The data obtained as part of the RFI will support a Corrective Measures Study (CMS) which, if necessary, would be designed to: 1) determine corrective actions objectives; 2) identify the need for remediation; and 3) evaluate potential remedial alternatives for releases at the site, as necessary. Safety-Kleen believes that discussions with IEPA on the direction and scope of the next activities would streamline the process and provide for focused and efficient future efforts. Specific issues that would be discussed may include: use of the

proposed Title 35 Part 742 Tiered Approach to Corrective Action Objectives; additional data needs, if any; and development of candidate alternatives. With agreement on these issues and the general approach, the ensuing site studies and activities, if any, will be clearly understood and well focused.

Safety-Kleen looks forward to your response to the Phase II RFI Report and the opportunity to discuss a mutually agreeable direction for the Safety-Kleen CRC. If you have any questions or comments about this report, please contact me (847-468-2216).

Sincerely,
Safety-Kleen Corporation



Anne Lunt
Senior Project Manager - Remediation

Attachments

cc: Keith Marcott, Safety-Kleen Corp.
Alfred Aghaiepour, Safety-Kleen CRC
Bob Burke, Safety-Kleen Dalton
David Reynolds, City of Chicago

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State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

Gade
USEPA

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

June 17, 1996

CERTIFIED MAIL
Z 363 759 175

Safety-Kleen Corporation
Attn: Ms. Anne M. Lunt
1000 North Randall Road
Elgin, Illinois 60123-7857

Re: 0310600053 -- Cook County
Safety-Kleen Chicago Recycle Center
ILD005450697
Date Received: November 27, 1995
Log No. B-121-CA-1
RCRA Permit

Dear Ms. Lunt:

This letter is in response to the technical memorandum dated November 21, 1995 which was submitted to document the results of the first part of the soil and groundwater investigation being conducted as part of the Phase II RCRA Facility Investigation (B-121) for the Safety-Kleen Chicago Recycle Center facility (SKC-CRC). Additionally, this submittal proposed additional soil samples and monitoring well locations based upon the results of the September 1995 soil and groundwater investigations.


The subject submittal is hereby approved, subject to the following conditions and modifications:

1. The revised schedule set forth in your June 7, 1996 letter is hereby approved. Thus the report and certifications referenced in Condition 2 of the Agency's July 7, 1995 Phase II Workplan approval letter should be submitted to the Agency by February 15, 1997. This date may be revised if Safety-Kleen Corporation submits information to the Agency indicating that it is attempting to complete the required activities in a timely manner but needs additional time to complete the investigation.
2. Well completion diagrams and boring logs for each new groundwater monitoring well must be contained in the RFI report.
3. A contingency plan should be established for if, after installation and development of the four new wells, any of the new wells are dry. This plan should include provisions to reach groundwater such as (1) drilling deeper than originally proposed, (2) drilling in other locations of the site or (3) to cease installation of any new wells at the site.
4. Geological cross-sections (scale of 1 inch = 200 feet) based upon the information gathered from borings must be contained in the final RFI report. Cross-sections should include information such as:

- a. Significant formations/strata
 - b. Stratigraphic relationships between significant formations/strata
 - c. Zones of high permeability/hydraulic conductivity
 - d. Zones of weathered bedrock or fracturing
 - e. Location of boreholes
 - f. Depth of the zone of saturation
5. It should be noted that two of the VOCs listed on Page 1 of the Validated Groundwater Results table, contained in Attachment C, do have Class II Groundwater Quality Standards. 1,1-Dichloroethane (DCA) has a Class II Standard of 25 ug/l and 1,1,2-Trichloroethane (TCA) has a standard of 50 ug/l. With this, the total number of VOCs detected with a groundwater standard is raised to twelve.
 6. Attachments E and F of the subject submittal, identified as "IEA Summary Reports for September, 1995 Soil Analytical Data" and "IEA Summary Reports for September, 1995 Groundwater Analytical Data" were apparently inadvertently omitted from the subject submittal. This information should be included in the final RFI report.
 7. Except as modified by the subject submittal and this letter, RFI Phase II activities should be carried out in accordance with the Agency's July 7, 1995 RFI Phase II workplan approval letter.

Should you have any questions regarding this matter, please contact Michael A. Heaton at 217/524-3312 or Vickie Becker at 217/524-3285.

Sincerely,



Edwin C. Bakowski, P.E.
Manager, Permit Section
Bureau of Land

ECB:MAH:bjh\962362S.WPD
JVM

cc: USEPA Region V -- Hak Cho
LimnoTech (Ann Arbor, MI)

B-121-CA-1



cc: Maywood
USEPA

Todd

JKI
M4T

January 12, 1996

Fed Ex Tracking No.: 125 0511 796

Mr. Edwin Bakowski, P.E.
Manager Permit Section #3
Illinois Environmental Protection Agency
Bureau of Land
Division of Land Pollution Control
2200 Churchill Road
Springfield, IL 62706

Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
Second Quarterly Report
Phase II RCRA Facility Investigation
Reporting Period: 1 October, 1995 - 31 December, 1995

RECEIVED

JAN 16 1996

IEPA-BOL
PERMIT SECTION

Dear Mr. Bakowski:

This letter documents the activities performed as part of the Phase II RCRA Facility Investigation (RFI) for the Safety-Kleen CRC for the period of October 1 through December 31, 1995 (Second Quarterly Report). As specified in Item #5 in the July 7, 1995 IEPA qualified approval letter to the March 31, 1995 Phase II RCRA Facility Investigation Work Plan, the following summary includes: (a) an estimate of the percentage of the completed investigation; (b) a summary of the activities completed during this reporting period; (c) summaries of all actual or proposed changes to the Work Plan or its implementation; (d) summaries of all actual or potential problems encountered during the reporting period; (e) proposals for correcting any problems; (f) projected work anticipated for the next reporting period; and (g) other information or data as requested in writing by the Division of Land Pollution Control (DLPC). This report is submitted in compliance with the January 15 deadline for the work progress/project status quarterly report (as specified in Item #5 in the July 7, 1995 IEPA qualified approval letter).

OVERVIEW

The Phase II field investigations began in September with the soil and groundwater extent and distribution investigation with a geoprobe device. In accordance with the Phase II Work Plan, onsite screening of groundwater samples was conducted with a gas chromatograph (GC). Soil and groundwater samples were sent to IEA Laboratories (IEA), Schaumburg, Illinois, for VOC and SVOC analyses. The results of the soil and groundwater extent and distribution investigations were evaluated upon receipt of the laboratory data. These results and proposed recommendations for additional investigations were reported to IEPA in the November, 1995 RFI

Phase II Interim Technical Memorandum for IEPA review and comment. Upon IEPA approval of the Technical Memorandum, the remainder of the approved Phase II investigations will commence in accordance with the Phase II Work Plan.

We estimate that the Phase II field investigations are approximately 50% complete and the reporting is approximately 40% complete as of December 31, 1995.

ACTIVITIES FOR REPORTING PERIOD

Data Evaluation and Reporting (October and November, 1995)

The First Quarterly Report, dated October 4, 1995, was written and submitted to IEPA in accordance with the October 15, 1995 deadline for the work progress/project status quarterly report (as specified in Item #5 in the July 7, 1995 IEPA qualified approval letter).

Data evaluation was conducted on the available data from the Phase II extent and distribution investigations conducted in September. The data were summarized and the results were reported to IEPA in the November, 1995 RFI Phase II Interim Technical Memorandum for IEPA review and comment.

PROBLEMS/SOLUTIONS AND ACTUAL OR PROPOSED CHANGES TO WORK PLAN

No problems were encountered during this reporting period; however, additions to the Work Plan were proposed in the Interim Technical Memorandum. As stipulated in the Phase II Work Plan, based on the results of the extent and distribution investigations, four additional soil borings/monitoring wells were proposed in the Interim Technical Memorandum for IEPA review and approval.

ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Within 60 days of IEPA approval of the November, 1995 RFI Phase II Interim Technical Memorandum, Safety-Kleen will continue the additional field investigations as described in the Phase II Work Plan, along with the approved additional field investigations proposed in the Interim Technical Memorandum. These activities are summarized as follows:

Installation of Piezometers

As stipulated in the Phase II Work Plan, two piezometers will be installed adjacent to existing piezometers in the vicinity of former Tank Farm #3 to determine the presence and influence, if any, of vertical groundwater gradients at the site.

Installation of Additional Soil Borings/Monitoring Wells (if necessary)

As stipulated in the Phase II Work Plan, based on the results of the extent and distribution investigations, additional soil borings/monitoring wells were proposed in the Interim Technical Memorandum for IEPA review and approval. The approved additional soil borings/monitoring wells will be installed at the time the two piezometers are installed.

Surveying

After the two piezometers and the additional proposed monitoring wells are installed, the top of casing and ground level elevations will be surveyed relative to the existing site wells.

Collect Quarterly Static Water Level Data

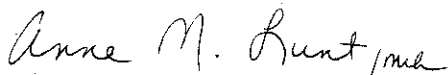
As stipulated in the Phase II Work Plan, after the two piezometers and the additional proposed monitoring wells are installed and developed, static water level data will be collected from all site wells quarterly for one year.

Data Evaluation and Reporting

Data evaluations will be conducted on the available data collected during the additional Phase II investigations (which will be conducted after IEPA approval of the November, 1995 Interim Technical Memorandum). The data will be summarized and the results will be reported to IEPA in the next Quarterly Report (if the data are available) and in a Phase II RFI Report.

If you have any questions or comments about this report, please contact either me at 708-468-2216 or Joyce Dunkin of LTI at 313-332-1200.

Sincerely,
Safety-Kleen Corp.



Anne M. Lunt
Senior Project Manager-Remediation

pc: Keith Marcott, Safety-Kleen Corp.
Alfred Aghaiepour, Safety-Kleen CRC
Ed DeSocio, Safety-Kleen CRC
Joyce Dunkin, LTI



November 21, 1995

Certified Mail No.: Z 129 833 692

Mr. Edwin Bakowski, P.E.
Manager Permit Section #33
Illinois Environmental Protection Agency
Bureau of Land
Division of Land Pollution Control
2200 Churchill Road
P.O. Box 19276
Springfield, IL 62794-9276



Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
Interim Technical Memorandum
Phase II RCRA Facility Investigation

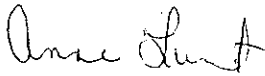
Dear Mr. Bakowski:

The enclosed Phase II Interim Technical Memorandum documents the results of the first part of the soil and groundwater investigations conducted in September, 1995 as part of the Phase II RCRA Facility Investigation (RFI) for the Safety-Kleen Chicago Recycle Center (SK-CRC). As specified in Section 6.1 of the approved March 31, 1995 Phase II RCRA Facility Investigation Workplan, this technical memorandum also proposes additional soil sampling and monitoring well locations based on the results of the September, 1995 soil and groundwater investigations. Safety-Kleen respectfully requests IEPA approval of the additional activities proposed in this Memorandum. With IEPA approval of this Memorandum, Safety-Kleen will continue the second part of the field investigations described in the Phase II Workplan, along with the additional field investigations proposed herein.

As specified in Item #2 in the July 7, 1995 IEPA qualified approval letter to the Phase II Workplan, the deadline for RFI Phase II activities is January 31, 1996. If IEPA approval of this Memorandum is received by December 8, 1995, Safety-Kleen will complete the majority of the field activities (including the activities proposed in this Memorandum) by the January 31, 1996 deadline, weather permitting. Quarterly static water level measurements will begin after the installation of the approved piezometers and proposed monitoring wells, and will continue for one year.

If you have any questions or comments about this Technical Memorandum, please contact either me at 708-468-2216 or Joyce Dunkin of LTI Environmental Engineering at 313-332-1200.

Sincerely,
Safety-Kleen Corp.



Anne M. Lunt
Senior Project Manager-Remediation

Attachments

pc: Keith Marcott, Safety-Kleen Corp.
Alfred Aghaiepour, Safety-Kleen CRC
Ed DeSocio, Safety-Kleen CRC
Joyce Dunkin, LTI

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B-121-CA-1

cc: Maywood
USEPA

T.G.

J/KW
MAH

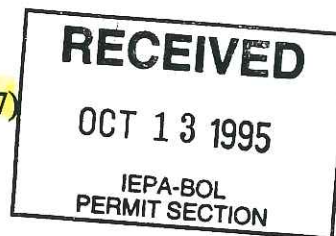


October 5, 1995

Certified Mail No. Z 129 833 691

Mr. Edwin Bakowski, P.E.
Manager Permit Section #33
Indiana Environmental Protection Agency
Bureau of Land
Division of Land Pollution Control
2200 Churchill Road
P.O. Box 19276
Springfield, IL 62794-9276

Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
First Quarterly Report
Phase II RCRA Facility Investigation
Reporting Period: 7 July - 30 September, 1995
D-2.8



Dear Mr. Bakowski:

This letter documents the activities performed as part of the Phase II RCRA Facility Investigation (RFI) for the Safety-Kleen CRC for the period of July 7 through September 30, 1995 (First Quarter). As specified in Item #5 in the July 7, 1995 IEPA qualified approval letter to the March 31, 1995 Phase II RCRA Facility Investigation Workplan, the following summary includes: (a) an estimate of the percentage of the completed investigation; (b) a summary of the activities completed during this reporting period; (c) summaries of all actual or proposed changes to the workplan or its implementation; (d) summaries of all actual or potential problems encountered during the reporting period; (e) proposals for correcting any problems; (f) projected work anticipated for the next reporting period; and (g) other information or data as requested in writing by the Division of Land Pollution Control (DLPC). This report is submitted in compliance with the October 15 deadline for the work progress/project status quarterly report (as specified in Item #5 in the July 7, 1995 IEPA qualified approval letter).

OVERVIEW

The Phase II field investigations began in September with the soil and groundwater extent and distribution investigation with a geoprobe device. In accordance with the Phase II Workplan, onsite screening of groundwater samples was conducted with a gas chromatograph (GC). Soil and groundwater samples were sent to IEA Laboratories (IEA), Schaumburg, Illinois, for VOC and SVOC analyses. The results of the soil and groundwater extent and distribution investigations will be evaluated upon receipt of the laboratory data. These results, and any

proposed recommendations, will be reported to IEPA for review and comment prior to proceeding with the remainder of the approved Phase II investigations, in accordance with the Phase II Workplan.

We estimate that the Phase II field investigations are approximately 50% complete and the reporting is approximately 10% complete as of September 30, 1995.

ACTIVITIES FOR REPORTING PERIOD

Soil and Groundwater Extent and Distribution Investigations (September 13-15, 1995)

In accordance with the procedures in the Phase II Workplan, soil samples were collected from 10 locations with a geoprobe device and submitted to IEA for VOC and SVOC/Total Phenols analyses. Groundwater samples were collected from nine of the ten locations for onsite screening of selected VOCs. All additional groundwater samples were submitted to IEA for VOC and SVOC/Total Phenols analyses. In addition, two soil samples were submitted to Professional Services, Inc. (PSI), Ann Arbor, Michigan, for laboratory permeability testing. The laboratory results for the September, 1995 sampling event will be reported to IEPA when they become available.

Reconstruction of Monitoring Well MW8

Monitoring well MW8 was converted from a stick-up well to a flush mount well to assist traffic flow at the site. As verbally requested by IEPA in the September 13, 1995 phone conversation with Joyce Dunkin of LTI Environmental Engineering (LTI), the draft revised well construction diagram and a location map are included in Attachment A in this report. The final revised well construction diagram will be submitted after the well is resurveyed.

Data Evaluation (July 7 - September 30, 1995)

Data evaluation has begun on the available data from the Phase II extent and distribution investigations conducted in September.

PROBLEMS/SOLUTIONS AND ACTUAL OR PROPOSED CHANGES TO WORK PLAN

During the soil and groundwater extent and distribution investigations in September, 1995, there were several locations where field personnel were unable to collect a full set of soil and/or groundwater samples for laboratory analyses due to subsurface obstructions or a lack of groundwater. A total of eleven locations were investigated (the Work Plan states that 8 to 12 locations would be investigated). The draft map and table provided in Attachment B summarize the locations where samples were collected and the types of samples that were obtained at each location.

At five of the eleven locations, a full sample set was collected for both soil and groundwater. An SVOC groundwater sample was not collected at location GP1 because of very low flow rates. No groundwater was collected for either screening or laboratory analyses at location GP2 because no water was encountered. Deep soil samples from the clay layer were not collected at locations GP4 and GP5 because a subsurface obstruction was encountered at 4 feet below grade. Field personnel were unable to collect either soil or groundwater samples at one location only (GP11), because of a lack of water down to 12 feet below grade and because the geoprobe device broke at this location.

ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Data Evaluation and Reporting

The soil and groundwater data from the First Quarter extent and distribution investigations will be evaluated. The results of this investigation will be summarized and reported to IEPA with recommendations for additional investigations, if necessary. Within 60 days of IEPA approval of the interim summary report of the extent and distribution investigations, Safety-Kleen will continue the additional field investigations as described in the Phase II Workplan, along with any additional field investigations proposed in the interim summary report.

Installation of Piezometers

As stipulated in the Phase II Workplan, two piezometers will be installed adjacent to existing piezometers in the vicinity of former Tank Farm #3 to determine the presence and influence, if any, of vertical groundwater gradients at the site.

Installation of Additional Soil Borings/Monitoring Wells (if necessary)

As stipulated in the Phase II Workplan, based on the results of the extent and distribution investigations, additional soil borings/monitoring wells, if necessary, will be proposed in the interim summary report for IEPA review and approval. Any additional soil borings/monitoring wells will be installed at the time the two piezometers will be installed.

Surveying

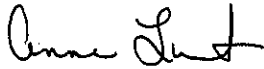
After the two piezometers (and any additional proposed monitoring wells) are installed, the top of casing and ground level elevations will be surveyed relative to the existing site wells.

Collect Quarterly Static Water Level Data

As stipulated in the Phase II Workplan, after the two piezometers (and any additional proposed monitoring wells) are installed and developed, static water level data will be collected from all site wells quarterly for one year.

If you have any questions or comments about this report, please contact either me at 708-468-2216 or Joyce Dunkin of LTI at 313-332-1200.

Sincerely,
Safety-Kleen Corp.



Anne M. Lunt
Senior Project Manager-Remediation

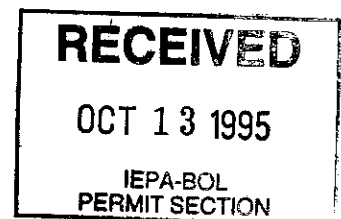
Attachments

pc: Keith Marcott, Safety-Kleen Corp.
Alfred Aghaiepour, Safety-Kleen CRC
Ed DeSocio, Safety-Kleen CRC
Joyce Dunkin, LTI

LIST OF ATTACHMENTS

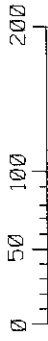
- A. Draft Revised Well Construction Diagram for Monitoring Well MW8 and Well Location Map.
- B. Map of September, 1995 Geoprobe Sampling Locations and Summary of Sample Collections and Analyses.

Attachment A.
Draft Revised Well Construction Diagram for Monitoring Well MW8
and Well Location Map



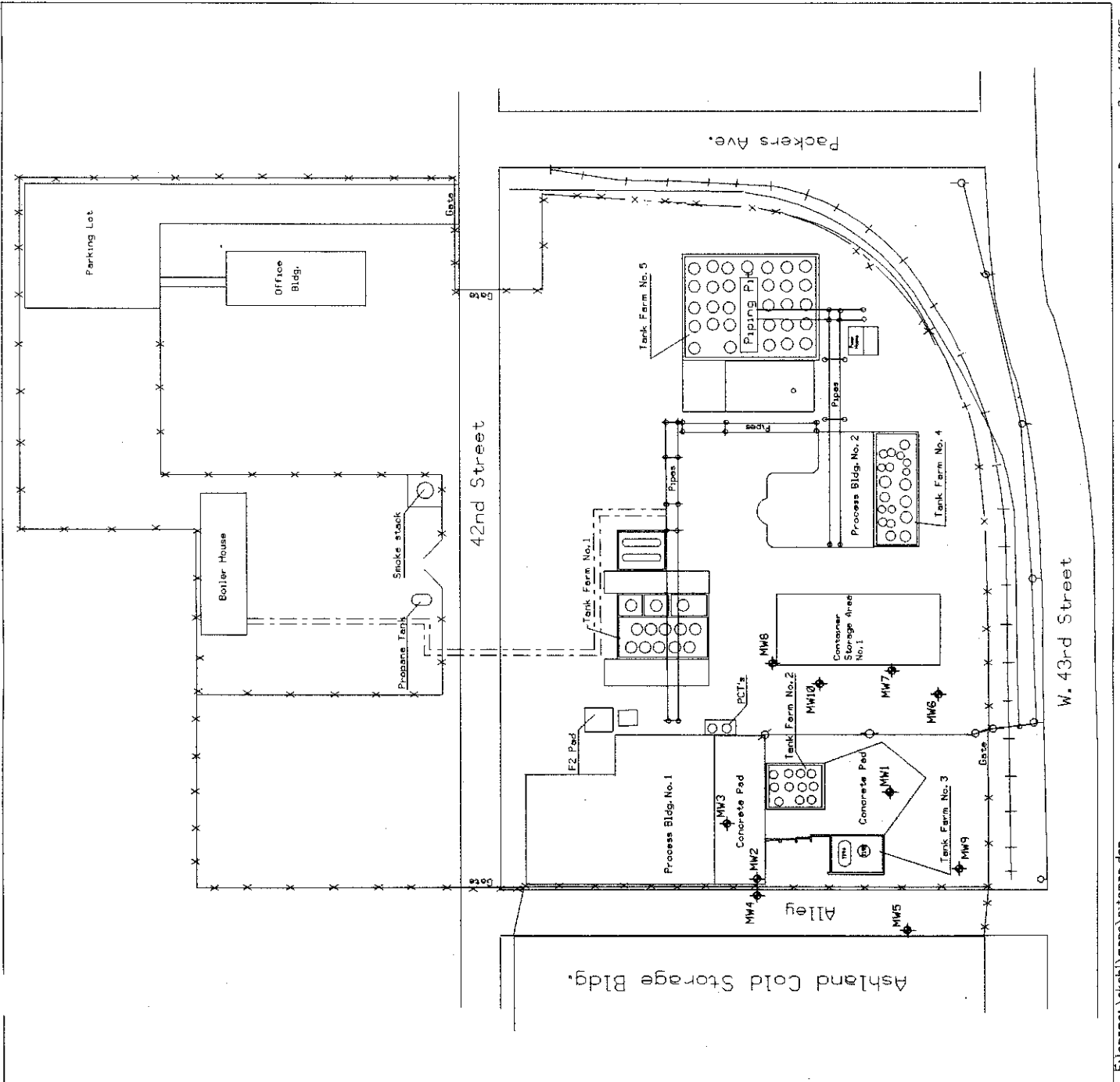
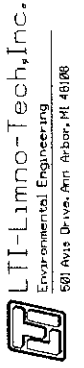
Well Completion Report-revised 9/27/95

III registration #

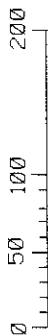


Legend	
	Building or Street Outline
	Concrete Pad
	Overhead Line or Pipe
	Fenceline
	MWB
	Monitoring Well

SAFETY-KLEEN CORP.
Chicago Recycle Center



Attachment B.
Map of September, 1995 Geoprobe Sampling Locations
and Summary of Sample Collections and Analyses



Legend

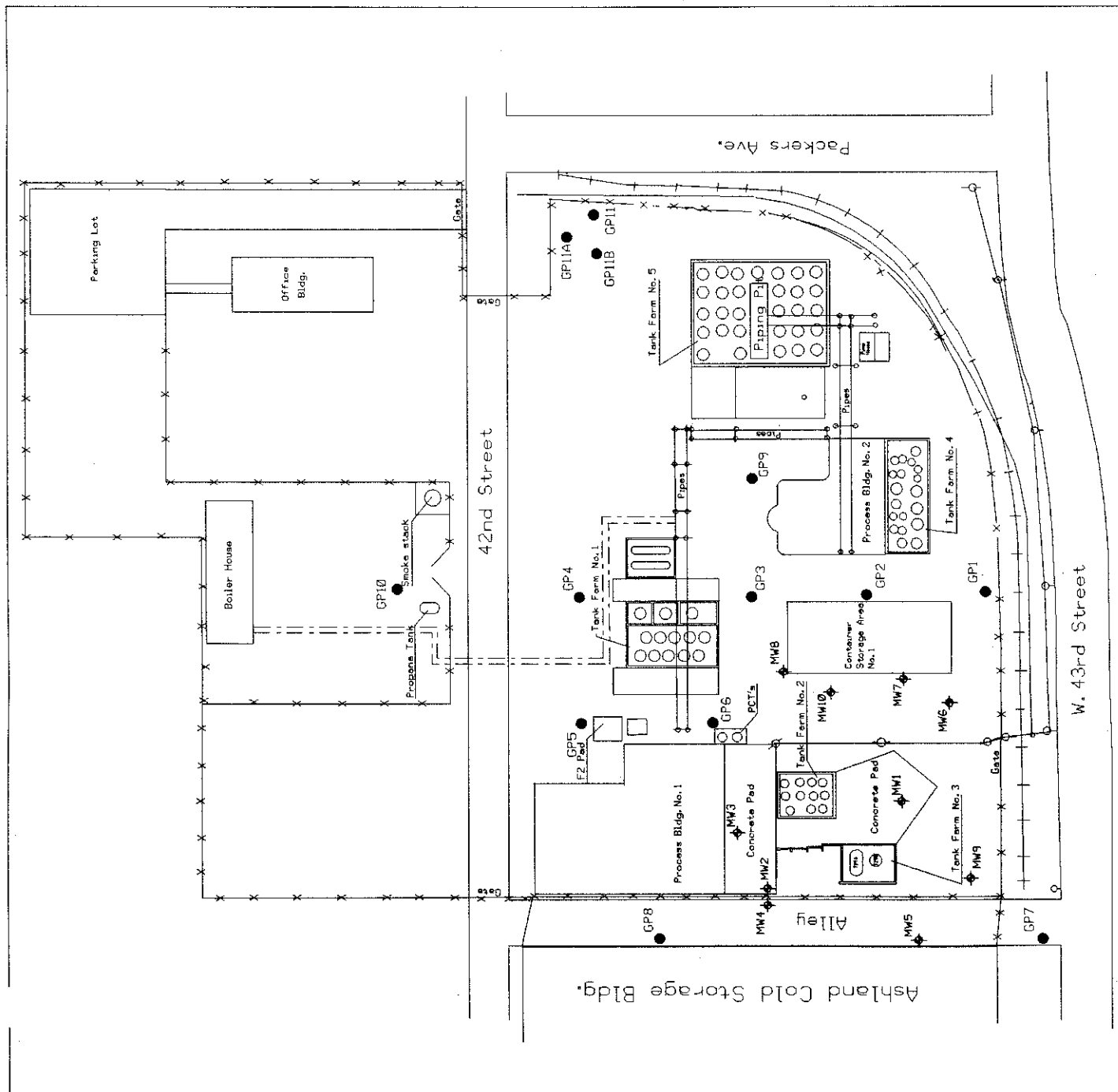
- Building or Street Outline
- Concrete Pad
- Overhead Line or Pipe
- Fenceline
- MW8
- GP4
- Monitoring Well
- Geoprobe Sampling Location

SAFETY-KLEEN CORP.
Chicago Recycle Center

Geoprobe Sampling Locations September 1995



LTI-Lumino-Tech, Inc.
Environmental Engineering
581 Avis Drive, Ann Arbor, MI 48106



SUMMARY OF SEPTEMBER, 1995 SAMPLE COLLECTIONS AND ANALYSES, PHASE II INVESTIGATIONS
Safety-Kleen Chicago Recycle Center

Geoprobe Location	Interval (feet)	Field Screening Sample	Lab VOC Analysis	Lab SVOC/Phenols Analyses	Permeability Test	Geoprobe Location	Interval (feet)	Field Screening Sample	Lab VOC Analysis	Lab SVOC/Phenols Analyses	Permeability Test
GP1	2'-3' (soil)		x	x		GP7	2'-4' (soil)		x	x	
	14'-16' (soil)		x	x			13'-15' (soil)		x	x	
	9'-11' (water)	x	x				11'-13' (water)	x	x	x	
GP2	2'-4' (soil)		x	x		GP8	2'-4' (soil)		x	x	
	15'-17' (soil)		x	x			13'-15' (soil)		x	x	
	no water						6'-8' (soil)				x
GP3	2'-4' (soil)		x	x		GP9	4'-6' (water)	x (2'-4')	x	x	
	14'-16' (soil)		x	x			2'-4' (soil)		x	x	
	7'-9' (water)	x	x	x			14'-16' (soil)		x	x	
GP4	2'-4' (soil)		x	x		GP10	9'-11' (water)	x (11'-13')	x	x	
	hit obstruction, no soil sample below 4'						2'-4' (soil)		x	x	
	2'-4' (water)	x	x				12'-14' (soil)		x	x	
GP5	2'-4' (soil)		x	x		GP11	10'-12'	x			
	hit obstruction, no soil sample below 4'						no soil				
	2'-4' (water)	x	x				no water (dry to 12', geoprobe broke)				
GP6	2'-4' (soil)		x	x		DUP-F	soil (GP7: 2'-4')		x	x	
	13'-15' (soil)		x	x			water (GP7: 11'-13')		x	x	
	6'-8' (soil)										
	2'-4' (water)	x	x	x							



March 31, 1995

Fed. Ex. Tracking Number: 4313096336

Mr. Harry Chappel, P.E.
Hazardous Waste Branch Manager
Indiana Environmental Protection Agency
Division of Land Pollution Control, #33
Permit Section
2200 Churchill Road
Springfield, IL 62794-9276

RECEIVED

APR - 3 1995

IEPA - BCL
PERMIT SECTION

X Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
RFI Phase II Workplan

Dear Mr. Chappel:

We are pleased to submit to you the enclosed four copies of the Safety-Kleen Chicago Recycle Center (CRC) RCRA Facility Investigation (RFI) Phase II Workplan. This workplan was requested by IEPA and is submitted in compliance with the April 1, 1995 deadline, as specified in the IEPA's September 30, 1994 response to the June, 1994 RFI Phase I Report. Also, as requested by IEPA, the workplan contains a proposal for groundwater classification at the CRC.

If you have any questions or comments about this workplan, please contact me at the Safety-Kleen, Elgin, Illinois office (708-697-8460) or Greg Peterson at Limno-Tech, Inc. in Ann Arbor, Michigan (313-973-8300).

Sincerely,
Safety-Kleen Corporation

Anne M Lunt
Anne M. Lunt, CHMM
Senior Project Manager

Enclosures

cc: Alfred Aghaiepour, Safety-Kleen
Paul L. Freedman, LTI

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B-121-CA-1



LTI-Limno-Tech, Inc.

Environmental Engineering

cc: Maywood
USEPA

JKM
D.2.1 MAH

March 14, 1995

Mr. Michael A. Heaton
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62794-9276

Dear Mr. Heaton:

As we discussed in our phone conversation on March 14, 1995 regarding the Phase II Workplan for the Safety-Kleen Chicago Recycle Center, you agree to allow Safety-Kleen to use the SW-846 8270 analysis rather than the 8310 analysis for soils requested in Item #2 in the September 30, 1994 IEPA response to the Phase I RFI Report. The Safety-Kleen Technical Center will use the 8270 method to analyze for the list of PNAs and Soil Preliminary Target Levels specified in Item #3 in the September 30, 1994 response. In addition, and as I discussed with Heather Young in my phone conversation with her on March 8, 1995, groundwater samples will not be analyzed for inorganic compounds.

If you are in agreement with this summary of the issues we discussed this morning, I will not expect a response from you. Thank you very much for your consideration and prompt response to my questions today.

Sincerely,
LTI - Limno-Tech, Inc.

Joyce S. Dunkin
Hydrogeologist

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RECEIVED

MAR 20 1995

IEPA - BUL
PERMIT SECTION



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

Soil "Action Level" Examples

USEPA

Iary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

July 7, 1995

Safety-Kleen Corporation
Attn: Ms. Anne M. Lunt
1000 North Randall Road
Elgin, Illinois 60123-7857

Re: 0310600053 -- Cook County
Safety-Kleen Chicago Recycle Center
ILD005450697
Date Received: April 3, 1995
Log No. B-121-CA-1
RCRA Permit

Dear Ms. Lunt:

This letter is in response to the Phase II RCRA Facility Investigation ("RFI") Workplan for the above-referenced facility which you submitted March 31, 1995. This workplan was prepared on your behalf by LimnoTech, Inc. and was submitted in accordance with this Agency's September 30, 1994 RFI Phase I Report approval letter. Additionally, this RFI Phase II Workplan included a proposal for groundwater classification at the SKC-CRC, as requested by the Agency in the Agency's September 30, 1994 RFI Phase I Report approval letter. The subject Workplan is hereby approved subject to the following conditions and modifications:

1. The RFI Phase II Workplan shall be carried out to delineate the extent of contamination for the following areas: (a) the area in the vicinity of Container Storage Area #1; and (b) the area in the vicinity of Tank Farms #2 and #3. Additionally, the RFI Phase II Workplan should be carried out to delineate the extent of any contamination at Tanks T-190 thru T-193, as stated in Condition 2 of the Agency's September 23, 1993 RFI Phase I Workplan approval letter.
2. RFI Phase II activities should be completed by January 31, 1996. When Phase II is complete the owner or operator must submit to the Agency certification both by a responsible officer of the owner or operator and by an independent registered professional engineer that the facility completed Phase II in accordance with the specifications in the approved Phase II Workplan. In addition, a certification statement meeting the requirements of 35 IAC 702.126 must be provided by a responsible officer of the laboratory which conducted the chemical analyses that the requirements of this letter were met during the chemical analyses of all samples. This certification must address the applicable sample collection, preservation, handling preparation and analytical requirements set forth in this letter. These certifications should be submitted to this Agency by March 31, 1996. These dates may be revised if Safety-Kleen Corporation submits information to the Agency indicating that it is attempting to complete the required activities in a timely

manner but needs additional time to complete the investigation.

The attached RFI Phase II certification forms must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the RFI Phase II activities. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity.

The Professional Engineering Practice Act of 1989 (225 ILCS 325/1 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Professional Engineering Practice Act of 1989 (225 ILCS 325.4). Therefore, any certification or engineering services which are performed for RCRA Facility Investigations in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with sec. 14 of the Professional Engineering Practice Act of 1989 (225 ILCS 325.14).

To document the Phase II RFI activities at your facility, please submit a Documentation Report which includes:

- a. Information which the workplan indicates will be in the report;
- b. A chronological summary of Phase II activities and the cost involved;
- c. Photo documentation of Phase II activities;
- d. Information regarding the results of all soil and groundwater investigations, developed in accordance with the requirements of the Phase II workplan and this letter;
- e. Conclusions reached based upon the collected information;
- f. Recommendations regarding any additional investigative efforts necessary to adequately determine the amount and extent, if any, of soil and groundwater contamination at the facility;
- g. Recommended steps which should be taken to complete the corrective action required by the final RCRA permit issued to the subject facility. It would appear as though the next step, after completion of Phase II of the RFI, is to determine if corrective action is necessary at each SWMU or group of SWMUs. This determination should also be based on a detailed evaluation of the data collected during the RFI; and

- h. Information documenting the results of all required soil and groundwater investigation efforts. The goal of this presentation should be to present, in a logical manner, the activities and results associated with the completed efforts. The portion of the RFI Phase II report documenting the results of these efforts should be developed in accordance with Conditions 19 and 20 of the Agency's September 23, 1993 Phase I RFI Workplan approval letter.

The original and three (3) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

3. The following Preliminary Soil Target Levels have been developed to provide Safety Kleen with target levels which can be used to define the extent of contamination as part of the RFI.

<u>Parameter</u>	<u>Preliminary Soil Target Levels (mg/kg)</u>
Benzene	0.02
Chloroform	0.2
1,2 Dichloroethane	0.01
1,1 Dichloroethylene	0.03
Ethylbenzene	5.0
Phenols (total)	49.0
Styrene	2.0
Toluene	5.0
Trichloroethylene	0.02
1,1,2 Trichloroethane	0.01
Vinyl Chloride	0.002
Xylenes (total)	74.0
Acenaphthene	200.0
Anthracene	4300.0
Benzo(a)anthracene	0.7
Benzo(a)pyrene	0.09
Benzo(b)fluoranthene	0.9
Benzo(k)fluoranthene	4.0
Chrysene	1.0
Dibenzo(a,h)anthracene	0.09
Fluoranthene	980.0
Fluorene	160.0
Indeno(1,2,3-c,d)pyrene	0.9
Naphthalene	30.0
Pyrene	1400.0
Other Noncarcinogenic PNAs (total)	21.0
(sum of the three PNAs listed below)	
Acenaphthylene	
Benzo(g,h,i)perylene	
Phenanthrene	

4. The preliminary soil target levels above are not the final cleanup objectives upon which a determination of the need and extent of corrective action will be made. These preliminary values are only meant to serve as criteria for determining the extent of soil sampling/analysis necessary during the RFI. Final cleanup objectives which will be used to determine the need for and extent of soil remediation will be established after the RFI is complete. Final Agency action of these final soil cleanup objectives will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
5. Progress reports must be prepared and submitted to the Agency which describes the activities completed each quarter of the calendar year while the Phase II investigation is being carried out. These progress reports should include, at a minimum;
 - a. An estimate of the percentage of the investigation completed;
 - b. summary of activities completed during the reporting period;
 - c. summaries of all actual or proposed changes to the workplan or its implementation;
 - d. summaries of all actual or potential problems encountered during the reporting period;
 - e. proposals for correcting any problems;
 - f. projected work for the next reporting period; and
 - g. other information or data as requested in writing by the Agency's DLPC.

A quarterly progress report for the work completed from the date of this letter to September 30, 1995 must be submitted to the Agency by October 15, 1995. Subsequent quarterly reports must be submitted in a similar manner until the final RFI Phase II report required by Condition 2 above is submitted to the Agency.

6. All soil samples shall be analyzed individually (i.e., no compositing). When an SW-846 (Third Edition) analytical method is specified, all the chemicals listed in the Quantitation Limits Table for that method shall be reported unless specifically exempted in writing by the Agency. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. To demonstrate that a parameter is not present in a sample, analysis results must show a detection limit at least as low as (1) the PQL for that parameter in the Third Edition of SW-846 (Third Edition) Volume 1A, pages TWO-29 and TWO-30, Table 2-15 or (2) 50% of the preliminary target level identified in Condition 5 above.
7. All references to SW-846 in this letter refers to Test Methods For Evaluating Solid Wastes, Third Edition (SW-846).

8. Under the provisions of 29 CFR 1910 (51 FR 15, 654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.
9. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all required sampling/analysis efforts. Collection, preservation, handling, preparation, and analysis of all required samples must be carried out in accordance with the procedures set forth in SW-846.
10. If the Agency determines that implementation of this workplan fails to satisfy the requirements of Section IV of the RCRA Part B permit, the Agency reserves the right to require that additional work be completed to satisfy these requirements. Revisions of RFI Workplans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.
11. On Page 9 of the subject submittal, SKC-CRC reported that metals "...at (apparently naturally occurring levels) were detected in soil and groundwater samples." Therefore, as a condition of the approval of the submitted Workplan, groundwater sampling and analysis for inorganic constituents may need to be performed at a later date to support this statement.
12. According to a review of the submitted Workplan, groundwater at the SKC-CRC facility appears to be Class II - General Resource Groundwater.

Should you have any questions regarding this matter, please contact Michael A. Heaton at 217/524-3312 or Vicky Becker at 217/524-3285.

Sincerely,

Edwin C. Bakowski

Edwin C. Bakowski, P.E. *y JHK*
Manager, Permit Section
Bureau of Land

ECB:mah

JKM

Attachments: Phase II RFI Laboratory Certification
Phase II RFI Certification Statement

cc: USEPA Region V -- George Hamper
Greg Peterson -- LimnoTech (Ann Arbor, MI)



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

US EPA

Mary A. Gade, Director
217/524-3300

2200 Churchill Road, Springfield, IL 62794-9276

September 30, 1994

Safety-Kleen Corp. - CRC
Attn: Mr. Scott Davies
1000 N. Randall Road
Elgin, Illinois 60123

Re: 0316000053 -- Cook County
Safety-Kleen Corporation
ILD005450697
Date Received: July 1, 1994
Log No. B-121-CA-1
RCRA - Permits

Dear Mr. Davies:

This letter is in response to the document entitled "Safety-Kleen Chicago Recycle Center Phase I RFI Report", which was prepared on your behalf by LTI-LimnoTech, Inc. This document was submitted in accordance with Condition 5 of this Agency's September 23, 1993 RCRA Facility Investigation (RFI) Phase I Workplan approval letter. The objectives of the Phase I RFI conducted at the above-referenced facility appear to have been achieved and it also appears as though contamination is present in the vicinities of Tank Farms #2 and #3, and Container Storage Area #1. Thus, the next step in the corrective action process at this facility is the development of a Phase II RFI Workplan for further investigation at these solid waste management units. This Phase II Workplan should be submitted to the Agency by April 1, 1995 and should be developed in accordance with the following:

1. Attachment G of the Part B Permit issued to the subject facility outlines the procedures that should be followed when developing a Phase II RFI Workplan. The goal of the Phase II investigation should be to determine the horizontal and vertical extent of contaminated soil and groundwater around each of the SWMUs of concern.
2. Based upon the provided data, it appears as though no further inorganic analysis is necessary in the soils at the subject facility. Any soil samples which are intended to demonstrate the boundary of contamination should be analyzed for VOCs utilizing Method 8240 of SW-846 and PNAs utilizing Method 8310 of SW-846.
3. The following soil Preliminary Target Levels have been developed to provide Safety Kleen with target levels which can be used to define the extent of contamination as part of the RFI.

<u>Parameter</u>	<u>Soil Preliminary Target Levels (mg/kg)</u>
Benzene	0.025
Chloroform	0.01
1,2 Dichloroethane	0.025
1,1 Dichloroethylene	0.035
Ethylbenzene	1.0
Phenols (total)	0.1
Styrene	0.5
Toluene	2.5
Trichloroethylene	0.025
1,1,2 Trichloroethane	0.05
Vinyl Chloride	0.01
Xylenes (total)	10.0
Acenaphthene	42.0
Anthracene	210.0
Benzo(a)anthracene	0.013
Benzo(a)pyrene	0.02
Benzo(b)fluoranthene	0.018
Benzo(k)fluoranthene	0.017
Chrysene	0.15
Dibenzo(a,h)anthracene	0.03
Fluoranthene	28.0
Fluorene	28.0
Indeno(1,2,4-c,d)pyrene	0.043
Naphthalene	0.039
Pyrene	21.0
Other Noncarcinogenic PNAs (total)	21.0
Acenaphthylene	
Benzo(g,h,i)perylene	
Phenanthrene	

4. The preliminary soil target levels above are not the final cleanup objectives upon which a determination of the need and extent of corrective action will be made. These preliminary values are only meant to serve as criteria for determining the extent of soil sampling/analysis necessary during the RFI. Final cleanup objectives which will be used to determine the need for and extent of soil remediation will be established after the RFI is complete. Final Agency action of these final soil cleanup objectives will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
5. The above-referenced facility should prepare a Phase II RFI Workplan as proposed in Section 7.2 of the subject submittal. Contained in this Phase II Workplan should be a proposal for groundwater classification in accordance with 35 IAC Part 620. The attached document entitled Guidance for Demonstrating that Groundwater is Class II Groundwater should help the subject facility in determining the appropriate groundwater classification which should be applied to groundwater encountered at the site. If insufficient data has been collected, then Safety-Kleen must include a proposal to obtain the additional information in the Phase II RFI Workplan.

Safety Kleen Corp. (B-121-CA-1)
Page 3

Should you have any questions regarding this matter, please contact Michael A. Heaton at 217/524-3312 or Heather K. Young at 217/524-3290.

Sincerely,



Harry A. Chappel, P.E.
Hazardous Waste Branch Manager
Permit Section, Bureau of Land

HAC:mah

JVM

Attachment: Guidance for Demonstrating that Groundwater is
Class II Groundwater

cc: USEPA Region V -- George Hamper

APPENDIX D
GUIDANCE FOR DEMONSTRATING GROUNDWATER IS CLASS II GROUNDWATER

Introduction

The Illinois Pollution Control Board adopted the Groundwater Quality Standards at 35 IAC Code 620, in November 1991. Included in this rulemaking are criteria for classifying groundwaters for purposes of determining the appropriate level of protection (i.e. determining the appropriate quality standards which the groundwater should meet). Unless site-specific information demonstrates otherwise, the Bureau of Land presumes that all groundwater beneath a facility must meet Class I quality standards in 35 IAC 620 (the most stringent standards). The reason for this is that the Agency must take a conservative approach in ensuring that the quality of groundwater beneath a facility is adequately protected. This document has been developed to provide guidance to facilities regarding the type of information which should be provided to the Agency to demonstrate that groundwater beneath a facility is subject to the Class II groundwater quality standards. The class of a groundwater is independent of its actual quality, except for certain Class IV groundwater.

Definition of Class II Groundwater

Groundwater is classified in 35 IAC 620 as a Class II, general resource, groundwater when it:

1. Does not meet the provisions of 35 IAC 620.210 (Class I groundwater), 35 IAC 620.230 (Class III) or 35 IAC 620.240 (Class IV). (Determining whether the groundwater is Class III or Class IV is relatively straight forward, as is the requirement to determine if the groundwater has previously been classified as Class II groundwater by the Board). Determining that a groundwater is not a Class I groundwater is somewhat complex and is further discussed in the following section.
2. Has been found by the Board to be a Class II groundwater, pursuant to the petition procedures set forth in 35 IAC 620.260; (If a continuous zone containing groundwater begins within 10 feet of the ground surface and extends greater than ten feet below the ground surface it will not be considered a Class II groundwater if an additional criteria is met under 620.210, in this case it would be considered Class I groundwater. Although it may be possible, it is unrealistic to try and designate two distinct classes of groundwater within the same saturated hydrogeologic unit. But, if a facility can demonstrate that by cleaning the groundwater within ten feet of the surface to Class II specifications will not degrade the groundwater greater than 10 feet below the Agency may approve both Class I standards, the Agency may approve both Class I and II standards in accordance with the location of the groundwater); or
3. Is located less than ten feet below the ground surface (See also discussion in Item 2 above).

Demonstrating a Groundwater is a Class II Groundwater

Initially, the following should be reviewed to determine the appropriate classification of groundwater of a site: (1) published data concerning regional and local geologic and hydrogeologic conditions (i.e. geologic surveys, former site investigations, etc.); (2) the locations of all potable water wells located within one mile of the site with the logs and/or dates of well completion attached; and (3) available on site boring logs which characterize the geology from ground surface to the first saturated unit or, if a perched zone is present, the first saturated unit below the perched zone. A review of this information may clearly indicate that the groundwater of concern is a Class I, III or IV groundwater and thus would not be Class II groundwater.

If it appears as though, based on the general information gathered as discussed above, the groundwater of concern may only be a Class II groundwater then additional efforts must be carried to demonstrate conclusively that the groundwater is indeed Class II groundwater. The information which should thus be compiled and submitted to the Agency to demonstrate that a given groundwater is Class II groundwater includes the following (NOTE: If the information identified below has previously been submitted to the Agency, then one need only reference the document name, date it was submitted, and page(s) of the document on which the information is located):

1. Background information regarding the facility's operations;
2. A scaled drawing showing the location of the facility;
3. The discussion of the reason why it is necessary to classify the groundwater of concern at the facility;
4. A description of any remedial actions being carried out at the facility;
5. The results of the review of existing general information regarding the geology/hydrogeology of the facility and surrounding area as discussed above.
6. A description of the on-site geology and hydrogeology, including a description of the groundwater which is being classified and the geologic formation in which the groundwater is located. This description should be developed in accordance with the guidance set forth in the TEGD.
7. Information indicating that the groundwater of concern is not a Class III groundwater (see 35 IAC 620.230) or a Class IV groundwater.
8. Information, as appropriate, indicating that the groundwater has already been determined to be Class II groundwater by the Illinois Pollution Control Board as allowed by 35 IAC 620.260.
9. Information indicating that the groundwater is less than 10' below the groundwater surface. (If a continuous zone containing groundwater begins within 10 feet of the ground surface and extends greater than ten feet below the ground surface it will not be considered a Class II groundwater if an additional criteria is met under 620.210, in this case it would be considered Class I groundwater. Although it may be possible, it is

unrealistic to try and designate two distinct classes of groundwater within the same saturated hydrogeologic unit. But, if a facility can demonstrate that by cleaning the groundwater within ten feet of the surface to Class II specifications will not degrade the groundwater greater than 10 feet below the Agency may approve both Class I standards, the Agency may approve both Class I and II standards in accordance with the location of the groundwater); or

10. Information demonstrating that the groundwater is not Class I groundwater as defined in 35 IAC 620.210. This demonstration can be made by addressing the following (note that to be a Class II groundwater, a demonstration must be made that the groundwater does not meet any of the five criteria for Class I groundwater described below):
 - a. Groundwater located within the minimum setback of a well which serves as a potable water supply and to the bottom of such well Class I groundwater. The minimum setback zone of a well extends from the land surface to the bottom of the well as determined by the screen depth. This establishes a three-dimensional zone of protection around the well. Section 14.1 of the Environmental Protection Act establishes minimum setbacks of less than 200 feet for a private water supply well or less than 400 feet for a public water supply well unless the specified minimum setbacks have been expanded under the Wellhead Protection Program and the Illinois Groundwater Protection Act. Thus information must be provided demonstrating that the groundwater of concern does not meet this criterion for Class I groundwater.

This issue can be addressed by submitting a scaled map delineating the site and all potable water wells located within a one mile radius from the unit/s of concern. The Illinois State Water Survey and/or the Division of Public Water Supplies of the Illinois Environmental Protection Agency should be contacted, as well as other appropriate state and federal entities, to obtain this information. A copy of the state or federal agencies response to an information inquiry should be included with the information submitted by the facility. Also, a visual inspection of the area within 200 feet of the unit/s of concern should be conducted when possible to detect unlogged private wells.

- b. Groundwater in formations beneath in a facility which consist of unconsolidated sand, gravel or sand and gravel which is 5 feet or more in thickness and that contains 12 percent or less in fines (i.e. fines which pass through a No. 200 sieve tested according to ASTM Standard Practice D2488-84, incorporated by reference at Section 620.125) is Class I groundwater. Thus, if a facility desires to have groundwater beneath its facility to be classified as a Class II groundwater, it must submit information that the groundwater does not meet this criterion for Class I groundwater.

This criterion is specific to the type formations listed. If a zone of saturation fails this Class I criterion, Class I may still apply pursuant to (d) or (e) below. This criterion may be

satisfied by the submission of, at a minimum, one site specific, continuously sampled boring log which clearly identifies the saturated interval from which a representative sample was obtained. Sieve test analysis should be conducted on several samples from each saturated interval which is at least five feet in thickness and composed of sand sized grains or greater. In addition, the facility should submit the sieve data sheet, plot and a scaled map which identifies the location of each boring.

- c. Groundwater in sandstone which is 10 feet or more in thickness, or fractured carbonate which is 15 feet or more in thickness is Class I groundwater. Thus, to demonstrate a groundwater is Class II groundwater, information must be provided to demonstrate that the groundwater in question does not meet this criterion for Class I groundwater.

This demonstration may be made by the submission of, at a minimum, one site specific, continuously sampled boring log with a description of the geologic material present. This boring log should extend from the ground surface to a depth which is 10 feet to the uppermost water-bearing unit subject to Class I standards or bedrock, whichever is shallower. The boring(s) should be continuously sampled and located on a scaled site map. A representative sample, as used previously, is a sample obtained from each distinctive saturated unit within the boring. Also, a literature search of regional and local geologic conditions should be conducted with the results submitted to the Agency.

- d. Groundwater in a geologic material which is capable of a sustained groundwater yield, from up to a 12 inch borehole, of 150 gallons per day or more from a thickness of 15 feet or less is Class I groundwater. Thus, a demonstration that a given groundwater is Class II groundwater must contain a demonstration that the groundwater in question does not meet this criterion for Class I groundwater.

This demonstration can be made by the submission of continuously sampled boring logs which demonstrate aquifer thickness. In addition, as-built well construction diagrams should also be submitted to the Agency for review. Furthermore, a pump test or equivalent must be conducted to determine the yield of the geologic material. methodology, assumptions and any calculations performed should also be submitted to meet this requirement. If the aquifer geometry and transmissivity have been obtained through a site-specific field investigations, an analytical solution may be used to estimate well yield. The facility must demonstrate the appropriateness of an analytical solution to estimate well yield versus an actual field test. Well yield should be determined for either confined or unconfined.

- e. Groundwater in a geologic which has a hydraulic conductivity of 1×10^{-4} cm/sec or greater is Class I groundwater. Thus, a demonstration that a given groundwater is Class II groundwater must

contain a demonstration that the groundwater in question does not meet this criterion for Class I groundwater.

This demonstration can be made by performing field and/or lab tests such as a permeameter, slug test and/or pump test. An appropriate method of evaluation should be chosen based on the type of wells, the length of time over which data may need to be collected and, if known, the characteristics of the targeted aquifer. Such test methods and the suggested information to be submitted to the Agency include (note that any of the three method can be used):

- i. Permeameter. If this method is chosen, samples of unconsolidated materials should be left in the field-sampling tubes which then becomes the permeameter sample chamber. Proceeding in this manner should allow as little disruption to the sample as possible. Unconsolidated samples should not be repacked into the sample chamber. An outline of the laboratory test method used and a description of the steps followed including any calculations should be submitted to the Agency for review.
- ii. Slug tests. The information to be submitted to the Agency should include a description of the slug test method utilized and a discussion of the procedures following during the tests, including any calculations performed.

A significant drawback to performing a slug test is that it is heavily dependent on a high-quality intake. If a well point is clogged or corroded, measured values may be inaccurate. Also, if a well is developed by surging or backwashing prior to testing, the measured values may reflect increased conductivities in the artificially induced gravel pack around the intake (Freeze and Cherry, 1979). If slug tests are chosen, a sufficient number of tests should be run to ensure that representative measures of hydraulic conductivities have been obtained and that lateral variations at various depths are documented (TEGD, 1986).

- iii. Pump tests. Preliminary or short-term drawdown tests should be performed initially to assess the appropriate pumping rate for the constant-rate tests. Several methods and/or equations may be used in evaluating data generated from pump tests such as Theis, Hantush-Jacob, Hvorslev and/or Theim equations. The method(s) of evaluation selected should be provided to the Agency with justification for their use, explanations of any assumptions made and examples of all calculations performed along with a description of the physical tests performed including the type of pump used.

Two problems that should be considered are (1) storage of potentially contaminated water pumped from the well system and (2) potential effects of groundwater pumping on

existing waste plumes (TEGD, 1986). Any groundwater pumped from wells in an area where there is a potential for contamination during either a yield test or hydraulic conductivity test should be containerized and tested to determine whether its contents would be a special waste. This will aid the facility in determining whether any special permits are needed for disposing of the groundwater properly. Caution should be used when performing groundwater yield tests for extended periods of time, so that any contaminant plume present or suspected is not significantly altered.

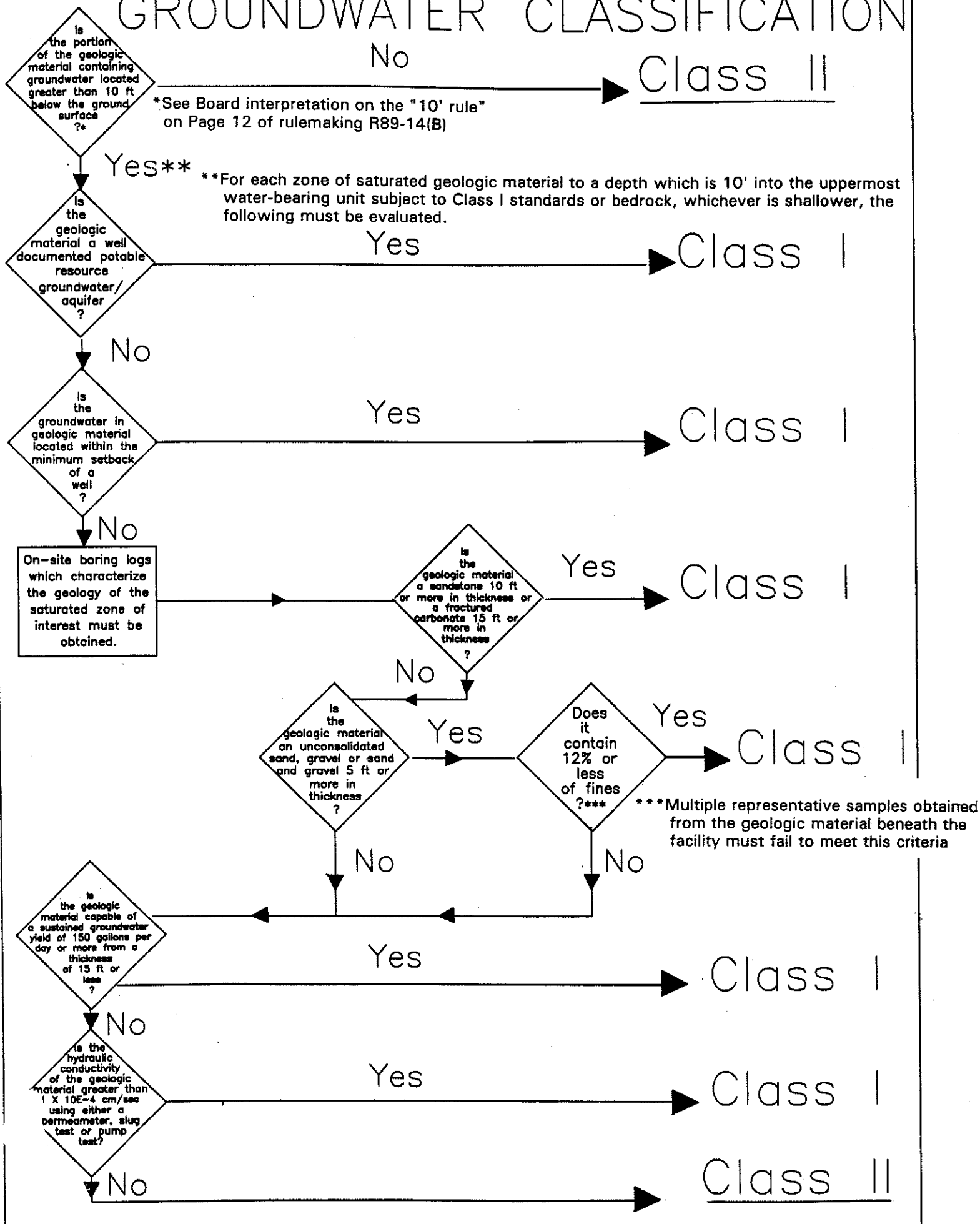
NOTE REGARDING PERMEABILITY TESTING: It may be beneficial to use laboratory evaluation methods to further support results of field tests; however, field methods provide the best definition of the hydraulic conductivity in most cases (TEGD, 1986). The most appropriate method to determine hydraulic conductivity for most sites will be the pump test provided proper evaluation of the data obtained from the test utilized. Pump tests provide in-situ measurements that are averaged over a large aquifer volume and are preferred since they are able to characterize a greater portion of the subsurface compared to the other aquifer tests. Slug tests provide in-situ values representative of a small volume of porous media in the immediate vicinity of a piezometer tip, providing point values only, and may be more appropriate in very low-permeability materials in which conductivity is too small to conduct a pump test.

REFERENCES: USEPA, 1986, RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD), OSWER - 9950.1

Freeze and Cherry, Groundwater, 1979, Prentice-Hall, Inc., Englewood Cliffs, NJ

JM:kw/621W, sp, 14-19

GROUNDWATER CLASSIFICATION



B-121-RP1-2
USEPA
Safety-Kleen Corp. - CRC
RFI Phase I Report

Log No. B-121

Upon completion of Phase I of the RFI, this statement is to be completed by both a responsible officer of the owner or operator (as defined in 35 IAC 702.126) and by the registered professional engineer overseeing all work associated with the investigation. Submit one copy of the certification with original signatures and three additional copies.

RFI Phase I activities at the facility described in the RFI Phase I Workplan have been completed in accordance with the specifications in the approved RFI Workplan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILD005450697
USEPA ID Number

Chicago Recycle Center
Facility Name

Scott E. Fore 6/29/94
Signature of Owner/Operator Date

Scott E. Fore *
Senior VP-Environment, Health & Safety
Name and Title

Paul L. Freedman 6/27/94
Signature of Registered P.E. Date

Paul L. Freedman 062-048739
Name of Registered P.E. and Illinois
Registration Number

Mailing Address of P.E.:

2395 Huron Parkway
Ann Arbor, MI 48104
(Limno-Tech, Inc.)

Registered P.E.'s Seal: **RECEIVED**



LWE:MH:sf/sp/634Y,15

* Please note some minor
modifications to the workplan
were necessary based on actual
field conditions (e.g. drilling locations
due to underground obstructions).

94-240

Safety-Kleen Corp. - CRC
RFI Phase I Report
Laboratory Certification
Log No. 8-121

Upon completion of Phase I of the RFI, this statement is to be completed by both a responsible officer of the owner or operator (as defined in 35 IAC 702.126) and (2) a responsible officer (as defined in 35 IAC 702.126) of the laboratory which conducted the chemical analyses required as part of Phase I of the RFI. The original of this statement shall accompany the original certification statement for the overall Phase I activities and the RFI Phase I Report.

The applicable sample collection, handling, preservation, preparation and analysis conducted as part of Phase I of the RFI at the facility described in this document that the chemical laboratory was responsible for has been conducted in accordance with the specifications in the approved workplan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILD005450697
USEPA ID Number
Scott E. Fore 6/29/94
Signature of Owner/Operator Date

WESTON - GULF COAST, INC.
Name of Laboratory

Mailing Address of Laboratory:

WESTON - GULF COAST, INC.
2417 BOND ST.
UNIVERSITY PARK, IL 60466

LWE:MH:sf/sp/634Y,16

Chicago Recycle Center
Facility Name
Scott E. Fore
Senior VP-Environment, Health & Safety
Name and Title of Owner/Operator Representative

Michael J. Healy 6-16-94
Signature of Laboratory Responsible Officer Date

Michael J. Healy Vice President / Lab Manager
Name and Title of Laboratory Responsible Officer

* AFTER REVIEWING THE IEPA LETTER DATED
23 SEPTEMBER 1993, NO ATTEMPT WAS
SPECIFIED OR MADE TO ACHIEVE LOW LEVEL
TCLP METAL DETECTION LIMITS AS DESCRIBED
ON PAGE 4, SECTION 9.

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IEPA - BCL
PERMIT SECTION

94-240



LTI-Limno-Tech, Inc.

Environmental Engineering

024 JUL 11-1

June 30, 1994

Mr. Doug Clay
Hazardous Waste Branch Manager
Indiana Environmental Protection Agency
Division of Land Pollution Control, #33
Permit Section
2200 Churchill Road
P.O. Box 19276
Springfield, IL 62794-9276

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WMD RECORD CENTER

JUL 15 1994


X Re: Safety-Kleen Chicago Recycle Center (ILD005450697)
RFI Phase I Report

Dear Mr. Clay:

We are pleased to submit to you the enclosed original and three copies of the Safety-Kleen Chicago Recycle Center (CRC) RCRA Facility Investigation (RFI) Phase I Report, which summarizes the results of investigations conducted at the CRC from December 1993 through February, 1994. This report (with attached certifications) is submitted in compliance with the July 1, 1994 deadline, as specified in Item #5 in the September 23, 1993 IEPA qualified approval letter to the May, 1993 Work Plan. The original signed certifications will be forwarded to you directly by Safety-Kleen Corporation.

If you have any questions or comments about this report, please contact Scott Davies of Safety-Kleen (708-468-2216) or either one of us (313-973-8300).

Sincerely,
LTI, Limno-Tech, Inc.

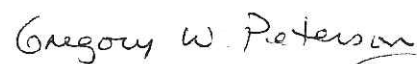

Paul L. Freedman, P.E., DEE
President

PLF/GWP/mrh

Enclosures
cc: Scott Davies, Safety-Kleen
Alfred Aghaiepour, Safety-Kleen

c:\skch1\letters\june-94\ltdc6-30.doc

Sincerely,
LTI, Limno-Tech, Inc.


Gregory W. Peterson
Project Manager

SSD

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JUL - 1 1994

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orig. to file
cc: Marywood/Kenison
USEPA AKY
LTI-Limno-Tech, Inc.
Environmental Engineering

0316000053 - Cook Co
Safety-Kleen-CRC
IL0005450697
Log No B 121
RCRA Permit File

April 29, 1994

Ms. Heather Young
IEPA
2200 Churchill Road
Springfield, IL 62794-9276

Dear Heather:

As we discussed in our telephone conversation yesterday, this letter provides written notice of the change that is being implemented to the Safety-Kleen-CRC RCRA Facility Investigation Work Plan. Specifically, Safety-Kleen will be using its own laboratory (Safety-Kleen Technical Center), located in Elk Grove Village, Illinois, for the remainder of the Corrective Action program, starting with the May, 1994 (third quarter) groundwater sampling event. In accordance with previous agreement with IEPA, Westen/Gulf Coast laboratories conducted the soils and groundwater analyses for the first two quarterly sampling events; however, Safety-Kleen now has the technical resources and capability available to analyze soil and groundwater samples in accordance with the QA/QC requirements of RCRA.

The Safety-Kleen Technical Center laboratory can comply with the requirements stipulated in the September 23, 1993 IEPA qualified approval letter, including the use of SW-846 methods and QA/QC, and Appendix I PQLs. My understanding of our phone conversation yesterday is that IEPA does not need to approve this change in writing as long as the laboratory we use complies with the requirements stipulated in the qualified approval letter and appropriate certification is provided.

Please accept this letter as a written amendment to the May, 1993 RFI Work Plan and Quality Assurance Program Plan. If you have any questions about this change, please contact either one of us at (313) 973-8300 or Scott Davies at (708) 468-2216.

Sincerely,
LTI, Limno-Tech, Inc.

Joyce S Dunkin
Joyce S. Dunkin
Hydrogeologist

JSD/mrh

cc: Matt Schweik
Gary Long
Scott Davies

c:\skch1\letters\apr-94\lthy4-29.doc

Sincerely,
Limno-Tech, Inc.

Gregory W Peterson
Gregory W. Peterson
Program Manager

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MAY 12 1994

OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

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MAY 6 1994

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B-138

cc: Maywood
USEPA

D.2.1



November 24, 1993

Mr. Jim Moore
Environmental Protection Agency
Illinois Manager of Corrective Action and Closure
1240 North Ninth Street
Springfield, IL 62702

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NOV 2 1993

Re: Safety-Kleen Chicago Recycle Center RFI
ILO 005 450 697

IEPA - DOL
PERMIT SECTION

Dear Mr. Moore:

As you requested during our phone conference of November 5, 1993, this letter presents Safety-Kleen's formal response to the September 23, 1993 IEPA modifications to the RFI workplan for the Safety-Kleen Chicago Recycle Center. Safety-Kleen accepts and agrees to incorporate the IEPA modifications stipulated in the Agency's September 23, 1993 letter with two exceptions: 1) We propose that only the most highly impacted monitoring well be sampled for the Appendix I parameters (except herbicides and pesticides) during the second quarterly sampling event, rather than conducting the "full list" of Appendix I parameter analyses on all wells, and 2) we plan to conduct the first quarterly sampling in early December 1993, rather than in October or November, 1993 as stipulated in the modifications.

Regarding the first exception, Safety-Kleen does not believe that it is necessary to sample all wells for all Appendix I parameters as stipulated in modification 21(c) of the September 23, 1993 letter. According to available information, the site has never in its history (prior to or during SK operations) received mixtures containing chemicals that would be identified in laboratory analyses such as dioxin, furan, or PCB scans. The procedures to conduct the complete scans are very costly, and we believe that such analyses are not justifiable given the costs involved. However, we recognize the need to conclusively identify and document the presence or absence of all chemicals of potential concern. Therefore we propose that the "full list" of Appendix I parameters be analyzed for in the groundwater samples from the monitoring well with the highest chemical concentrations. As suggested by Heather Young of IEPA during a November 10, 1993 phone conversation with Joyce Dunkin, the monitoring well with the highest chemical concentrations would be determined by IEPA based upon the first quarterly results obtained from all seven monitoring wells. For the first quarterly sampling event, the samples from all wells will be analyzed for volatile and semivolatile compounds. The well with the highest chemical

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concentrations will be identified and the second quarterly samples for this well will be analyzed for the "full list" of Appendix I parameters (except herbicides and pesticides). The other six wells would be sampled and analyzed for only the volatile and semivolatile chemicals identified in the first round sampling results.

The second exception to the modifications relates to the stipulated schedule. We propose to conduct the first quarterly sampling in early December, 1993 rather than October or November, as stipulated in the September 23, 1994 letter Safety-Kleen encountered some delays in getting permission for access to off-site wells. We will submit the first quarterly report which will include the first round laboratory results by January 31, 1994 in accordance with the RFI schedule. All subsequent sampling and quarterly reports would be conducted and submitted in accordance with the stipulated schedule. Sampling will be conducted during the first two months of the quarter, and the quarterly reports will be submitted by the fifteenth day of the month following the quarter. A Gantt Chart showing the schedule is attached.

If you have any questions or comments regarding this letter, please do not hesitate to call me at (708) 468-2216 or Greg Peterson or Joyce Dunkin at (313) 973-8300.

Sincerely

A handwritten signature in cursive script that reads "Scott E. Davies". The signature is written in dark ink and is positioned above the printed name.

Scott E. Davies

cc: Alfred Aghiepour
Gary Long
Desi Chari
Gregory W. Peterson

[illegible]

- BOHEMIA 2 XL 5:11/22/03-11:57 AM



Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

ILD 005 450 697

September 23, 1993

Safety-Kleen Corp. - CRC
Attn: Mr. Scott Davies
1000 N. Randall Road
Elgin, Illinois 60123

Re: 0316000053 -- Cook County
Safety-Kleen Corp.
ILD005450697
Date Received: May 4, 1993
Log No. B-121

Dear Mr. Davies:

The RCRA Facility Investigation (RFI) Phase I Workplan for Safety-Kleen Corp. - Chicago Recycling Center (SKC-CRC) which you submitted has been reviewed by this Agency. This workplan was submitted in accordance with Condition IV.B of the RCRA Part B permit issued for the above-referenced facility (Log No. B-121) on September 30, 1992. The workplan is hereby approved subject to the following conditions and modifications:

1. This RFI Phase I Workplan shall be carried out to investigate for possible releases from the following areas:

The area north of Container Storage Area #1 .

The area south of Tank Farm #2 and Tank Farm #3

These areas are as shown in Figure 4 "SWMU Investigation Area" of the above referenced submittal.

2. RCRA closure of Tank T-190 thru T-193 may be integrated with the RCRA Corrective Action Requirements set forth in the RCRA Part B permit issued to the subject facility as agreed upon by SKC-CRC and the Agency. As such all additional RCRA closure activities for these units shall be carried out as part of the RCRA corrective action for this facility and the Agency will allow SKC-CRC to extend the closure period for these units as allowed by 35 IAC 725.213.
3. As stated in Condition II on Page G-1 of the RCRA Part B Permit issued for the above-referenced facility, the purpose of the required Phase I investigation is to "demonstrate conclusively whether or not any releases of hazardous wastes or hazardous constituents have occurred from the SWMUs [listed above]". Therefore, the review of those RFI Phase I Workplan was conducted with this goal in mind.

4. Any modification made below regarding additional sampling requirements are based on the assumption that the goal of the Phase I RFI at each given SWMU is to demonstrate conclusively that there has been no release of hazardous waste or hazardous constituents from the SWMU. If this is not the goal of Safety-Kleen then the number of soil samples collected for analysis may be reduced.
5. RFI Phase I activities, except for collection/analysis evaluation of the final three quarters of groundwater samples, must be completed by May 1, 1994. When these activities are completed, the owner or operator must submit to the Agency certification both by a responsible officer of the owner or operator and by an independent registered professional engineer that the facility these activities in accordance with the specifications in the approved RFI Phase I workplan. In addition, a certification statement meeting the requirements of 35 IAC 702.126 must be provided by a responsible officer of the laboratory which conducted the chemical analyses that the requirements of this letter were met during the chemical analyses that the requirements of this letter were met during the chemical analysis of all samples. This certification must address the applicable sample collection, preservation, handling preparation and analytical requirements set forth in this letter. These certifications regarding all required RFI Phase I activities, except for the collection/analysis/evaluation of the final three quarters of groundwater samples must be received at this Agency or by July 1, 1994. These dates may be extended if SKC-CRC submits information to the Agency indicating that it is attempting to complete the required activities in a timely manner but needs additional time to complete the investigation.

The attached certification forms must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the RFI. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity.

The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5105 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Section 1). Therefore, any certification or engineering services which are performed for a RFI workplan in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, Section 13.1 of the Illinois Professional Engineering Act.

A Phase I Report and Summary must be submitted along with the certifications required above which contains, at a minimum:

- a. The information identified in Condition 19 below regarding the required soil sampling/analysis effort at each SWMU where such an investigation is necessary.
- b. The information identified in Condition 20 below regarding any subsurface investigation or monitoring well installation at each SWMU of concern;
- c. Information which the workplan indicates will be in the report;
- d. A chronological summary of Phase I activities and the cost involved;
- e. Color photo documentation of Phase I activities including color photo documentation of the area which is being investigated;
- f. A description of the general qualifications of personnel performing and directing the RFI activities including contractor personnel;
- g. Conclusions which can be made, based upon the results of the Phase I investigation; and
- h. A general discussion of the activities which should be carried out as part of Phase II of the RCRA Facility Investigation.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

6. The results of the second, third and fourth quarter of groundwater monitoring results must be submitted to the Agency in accordance with the schedule set forth in Condition 21.1 below.
7. A detailed evaluation of the groundwater monitoring results must be submitted to the Agency by November 15, 1994. This evaluation must summarize and analyze the data collected and make a recommendation as to the need for a Phase II investigation.

8. If the Agency determines that implementation of this RFI Workplan fails to satisfy the requirements of Section IV of the RCRA Part B Permit (Log No. B-121), the Agency reserves the right to require that additional work be completed to satisfy these requirements. Revisions of RFI Workplans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.
9. All soil samples shall be analyzed individually (i.e., no compositing). Analytical procedures shall be conducted in accordance with Test Methods for Evaluating Solid Wastes, Third Edition (SW-846). When an SW-846 (Third Edition) analytical method is specified, all the chemicals listed in the Quantitation Limits Table for that method shall be reported unless specifically exempted in writing by the Agency. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the PQL for that parameter in the third edition of SW-846. For inorganic parameters, the detection limit achieved during the analysis of the TCLP extract must be at least as low as the RCRA Groundwater Detection Limits, as referenced in SW-846 (Third Edition) Volume 1A, pages TWO-29 and TWO-30, Table 2-15.

Based upon a review of available information, it appears as though metal-bearing wastes in the form of paint waste, ink waste, oil refinery wastes, waste oils and/or waste metal working fluids have been managed at this location. Therefore, at a minimum, arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver should be analyzed for to determine their presence or absence at the SWMUs of concern. These parameters must be analyzed utilizing Method 1311 of SW-846. In addition, each soil sample collected to determine the presence or absence of hazardous constituents must also be analyzed for:

- a. Volatile Organic Compounds (VOCs) utilizing Method 8240 of SW-846; and
- b. Semi-Volatile Organic Compounds (SVOCs) utilizing Method 8270 of SW-846.

All constituents listed in the Practical Quantitation Limit (PQL) tables in these methods must be analyzed for and the PQLs in these tables must be achieved, if at all possible.

10. The following procedure must be utilized in the collection of all required soil samples:
 - a. The procedures used to collect the soil samples must be sufficient so that all soil encountered is classified in accordance with ASTM Method D-2488.

- b. If a drill rig or similar piece of equipment is necessary to collect required soil samples, then:
 - 1. The procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples.
 - 2. Soil samples must be collected continuously at several locations to provide information regarding the shallow geology of the area where the investigation is being conducted;
 - c. All soil samples which will be analyzed for volatile organic compounds (VOCs) must be collected in accordance with Attachment 7 of the Agency's RCRA closure plan instructions (attached);
 - d. Soil samples not collected explicitly for VOC analysis should be field-screened for the presence of VOCs at all locations where VOCs are a concern;
 - e. All other soil samples must be collected in accordance with the procedures set forth in SW-846; and
 - f. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination.
11. One goal of the subsurface investigation conducted as part of Phase I of the RFI should be to determine the horizontal and vertical extent of fill material present in the area being evaluated.
12. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all required sampling/analysis efforts. In addition, sample collection, handling, preservation, preparation and analysis must be conducted in accordance with the procedures set forth in SW-846 and the requirements set forth in this letter. Please note that the laboratory conducting the chemical analyses must be notified of this requirement and all other requirements set forth in this approval letter, including the requirement that the laboratory certify that all activities it was responsible for were carried out in accordance with this approval letter.
13. Any equipment, including heavy earth movers or smaller tools, shall be scraped to remove any residue. Following this, the equipment must be steam cleaned and triple rinsed. All residues, wash and rinse water shall be collected and managed as a hazardous waste if analysis of the waste detects the presence of hazardous constituents or it exhibits a characteristic of hazardous waste. In any event the material must be managed as a special waste.

14. If the Agency's DLPC determines, based on the data obtained from the Phase I Workplan activities, that there has been no release of hazardous waste or hazardous constituents to the environment from a SWMU identified in Condition 1 above, then no further investigative action will be required for that SWMU. If the Agency's DLPC determines, based on the data, that there has been a release of hazardous waste or hazardous constituents to the environment or that the data is inconclusive, the Permittee will be notified of such by the Agency's DLPC and will be requested to conduct additional investigations either in the form of (1) a supplemental Phase I RFI or (2) a Phase II RFI.
15. If SKC-CRC conducts a Phase I investigation which differs from the investigation described in this approval letter, then SKC-CRC must provide adequate justification in the report required by Condition 18 below for the variances. As stated in Conditions 3 and 4 above, the Agency feels that the requirements set forth in this letter are necessary to reach a conclusion that there has not been a release from a given SWMU. If the goals of SKC-CRC are somewhat different than this, then there may be justification for varying from the requirements set forth in this letter.
16. The Health and Safety Plan contained in the subject workplan is neither approved nor disapproved. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

The Agency has not reviewed the Health and Safety plan submitted as a portion of the report dated May 3, 1993, received by the Agency on May 4, 1993, and titled "RCRA Facility Investigation - Phase I Workplan". It is the responsibility of the facility to ensure that its health and safety plan complies with applicable OSHA regulations.

17. Reports must be prepared and submitted to the Agency which describe the activities completed each quarter of the calendar year while the Phase I investigation is being carried out. The quarterly reports shall contain at a minimum:
 - a. An estimate of the percentage of the investigation completed;

- b. Summary of activities completed during the reporting period;
 - c. Summaries of all actual or proposed changes to the Workplan or its implementation;
 - d. Summaries of all actual or potential problems encountered during the reporting period;
 - e. Proposal for correcting any problems;
 - f. Projected work for the next reporting period; and
 - g. Other information or data as requested in writing by the Agency's DLPC.
18. A quarterly report for the work completed from the date of this letter to December 31, 1993 (the first quarter of the current calendar year during which the required Phase I investigation is taking place) must be submitted to the Agency by January 31, 1994. Subsequent quarterly reports must be submitted in a similar manner until the final Phase I RFI Report is submitted to the Agency.
19. The portion of the final RFI Phase I report documenting the results of the required soil sampling/analysis effort must contain the following information, for each SWMU investigated:
- a. A discussion of (1) the reason for the sampling/analysis effort conducted at each SWMU and (2) the goals of the sampling analysis effort conducted at each SWMU;
 - b. A scaled drawing showing the horizontal and vertical location where all soil samples were collected at each SWMU;
 - c. Justification for the locations from which soil samples were collected;
 - d. A description of the procedures used for:
 - 1. Sample collection;
 - 2. Sample preservation;
 - 3. Chain of custody; and
 - 4. Decontamination of sampling equipment;
 - e. Visual classification of each soil sample collected for analysis;

- f. A discussion of the results of any field screening efforts;
 - g. Logs of all soil borings made during the investigation;
 - h. A description of the soil types encountered during the investigation, including scaled cross-sections. Of special concern is the horizontal and vertical extent of the fill material, as indicated in Condition 11 above;
 - i. A description of the procedures used to analyze the soil samples, including:
 - 1. The analytical procedure used, including the procedures, if any, used to prepare the sample for analysis;
 - 2. Any dilutions made to the original sample;
 - 3. Any interferences encountered during the analysis of each sample; and
 - 4. The practical quantitation limit achieved, including justification for reporting PQLs which are above those set forth in SW-846.
 - j. A description of all quality control/quality assurance analyses conducted, including the analysis of lab blanks, trip blanks and field blanks;
 - k. A description of all quality assurance/quality control efforts made overall;
 - l. A summary of all analytical data, including QA/QC results, in tabular form;
 - m. Copies of the final laboratory sheets which report the results of the analyses, including final sheets reporting quality assurance/quality control data;
 - n. Colored photographs documenting the sampling effort; and
 - o. A discussion of the collected data. This discussion should identify those sample locations where contaminants were detected and the concentrations of the contaminants. Conclusions which can be drawn from the information compiled should also be included in this discussion.
20. The portion of the final RFI report documenting the results of the required subsurface and groundwater investigation must contain, at a minimum, the following information for each SWMU:

- a. Logs of the borings made during the required subsurface investigation and/or for monitoring well installation;
 - b. Procedures used in carrying out the subsurface investigation (including the boring procedures) and in the installation of the monitoring wells;
 - c. Results of all tests conducted in-situ or in the laboratory;
 - d. A description of the procedures carried out in conducting the tests identified in Condition 21.c above;
 - e. Completed IEPA Well Completion Reports;
 - f. Scaled drawings showing the location where all borings were made and where all monitoring wells were installed;
 - g. Well development procedures;
 - h. A discussion of the geology and hydrogeology of the areas being investigated, based upon the results of the Phase I investigation efforts and previously collected information;
 - i. A minimum of two cross-sections depicting the subsurface geology and hydrogeology at each area being investigated. These cross-sections should be as close to perpendicular to each other as possible, so that a three-dimensional presentation of this information can be depicted;
 - j. Information regarding the groundwater sampling/analysis effort as identified in Items 19.d, 19.f, 19.h, 19.i, 19.j, 19.k, 19.l and 19.n above;
 - k. Water level measurements made prior to the collection of the groundwater samples; and
 - l. Maps and supporting data identifying the piezometric surface of the groundwater beneath the facility and the direction of groundwater flow.
21. The following comments pertain to the groundwater investigation of SKC-CRC (All referenced page numbers are from the document titled "RCRA Facility Investigation - Phase I Workplan", dated May 3, 1993 and received by the Agency on May 4, 1993):
- a. A discussion of the results of a literature survey of the regional geologic and hydrogeologic characteristics along with a list of references shall be submitted to the Agency along with the first quarterly groundwater monitoring report required to be submitted to the Agency. This information shall contain local stratigraphy, regional hydrogeologic flow and areas of recharge and discharge.

- b. As stated on page 4, the data collected and evaluated during the Phase I investigation in regards to any influence the sewer located in the alley immediately west of the SKC-CRC may have on the local hydrogeology shall be included in the first quarterly groundwater monitoring report submitted to the Agency for review.
- c. On page 11, SKC-CRC proposes a list of volatile and semi-volatile parameters based on materials handled at the SKC-CRC and constituents previously detected in the soil and groundwater investigations. To properly demonstrate there has been no release of hazardous wastes or hazardous constituents to the groundwater, a 35 IAC 724 Appendix I scan, except pesticides and herbicides, must be run on a sample collected from each well required to be sampled and analyzed by this letter. This sampling event should occur during the second or third quarter sampling event. This sampling/analysis effort is necessary because there are several unknowns associated with past waste management operations at the site. If such constituents as dioxins, PCBs and furans are not detected, then very little, if any, future analysis will be required for those constituents.
- d. SKC-CRC proposes to install five additional wells with two of the five wells upgradient of the areas of concern. At least two additional monitoring wells are necessary to properly evaluate the potential for groundwater contamination at this time. One additional well should be placed in the southwest quarter of the SWMU investigation area identified in Figure 4 of the Workplan. The other additional well should be located in the area between Tank Farm #2 and Container Storage Area #1. The installation of additional wells is necessary since exact historical locations of spills and/or management activities are not given.
- e. Soil samples must be collected continuously using split-spoon samplers and/or Shelby tubes during the installation of the monitoring wells. Soil samples must also be collected continuously at deep boring proposed on Page 16. However, if this deep boring is located within 10' of a well, then continuous sampling need only occur below the depth of the well.
- f. When logging the borings in which the monitoring wells shall be placed, an interpretation of hydraulic interconnections between saturated zones and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits shall be noted along with the submission of the boring logs. Also, the depth at which groundwater is first encountered as well as the stabilized elevation shall be recording on the boring log.
- g. If SKC-CRC intends to correlate data from the ongoing RCRA closure activities, new monitoring wells (1) must be screened in the same stratigraphic zone as the groundwater monitoring system currently in place and (2) be surveyed using the same benchmark used. Otherwise,

a new survey of the old and new wells must be collected. On page 14 it is stated that all wells will be set to a depth of 10 feet below ground surface. Although consistency is desired, the anticipated depth shall be adjusted as field conditions warrant such adjustment.

- h. Stainless steel used in the construction of the monitoring wells shall be of Schedule 316.
- i. All monitoring wells or piezometers completed above ground and located in high traffic areas must be protected by bumper guards.
- j. Well development shall continue until field parameters, specific conductance, pH, turbidity and temperature, stabilize provided a minimum of three well volumes are removed.
- k. All soil borings, soil cuttings, purged groundwater from well sampling or purging, equipment decontamination wash and rinsates, etc., must be containerized and managed as hazardous waste unless proven non-hazardous in accordance with 35 IAC 721.103(c) and (d). SKC-CRC, being considered the generator of these wastes, must adequately classify these wastes as either hazardous or non-hazardous. In any event, these materials must be managed as special wastes.
- l. Quarterly reports shall be submitted in accordance with the following schedule (NOTE: The groundwater monitoring wells must be installed so that samples can be collected during either October 1993 or November 1993):

<u>Sampling Event</u> <u>Phase I</u> <u>RFI</u>	<u>Samples to be</u> <u>Collected During</u> <u>the Months of</u>	<u>Results Submitted</u> <u>to the Agency by</u> <u>the Following</u>
First Quarter	October - November	January 15
Second Quarter	January - February	April 15
Third Quarter	April - May	July 15
Fourth Quarter	July - August	October 15

- m. Prior to purging a well for sample collection, the potential presence of an immiscible liquid must be evaluated. This evaluation must be in accordance with the procedures set forth on pages 7.6 and 7.7 of the RCRA Ground-Water Monitoring: DRAFT Technical Guidance, November 1992 (EPA/530-R-93-001).
- n. The order of sample collection shall proceed as follows:
 - i. Volatile organics (VOAs or VOCs) and total organic halogens (TOX);

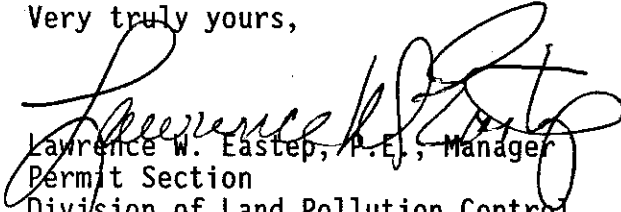
- ii. Dissolved gases and total organic carbon (TOC);
 - iii. Semivolatile organics (SMVs or SVOCs);
 - iv. Metals and cyanide;
 - v. Major water quality cations and anions; and
 - vi. Radionuclides.
- o. Electronic water level indicators or steel measuring tapes used to collect static water levels shall be dedicated or disposable or be decontaminated in accordance with the workplan and any modifications made herein.
- p. Since the Phase I investigation of the RFI is to determine whether contamination exists, the slug tests proposed are not a required portion of this phase. Therefore, if SKC-CRC obtains hydraulic conductivities using wells screened across two dissimilar saturated zones, the data obtained will be considered preliminary only. The Agency may require more extensive and discreet hydraulic conductivity testing during any Phase II investigation.
- q. Use of the Bouwer and Rice method to analyze data from the proposed slug tests to obtain composite hydraulic conductivities appears to be inappropriate. The method proposed assumes homogenous and isotropic conditions which do not correspond with field observations. Therefore, if these slug tests are to be conducted, an appropriate method of analysis or an adequate explanation of the appropriateness of the Bouwer and Rice method shall be proposed to the Agency by October 31, 1993.
- r. All sample forms, chain of custody forms, maintenance and calibration records shall be submitted with the appropriate quarterly groundwater sampling report.
- s. All data will be presented in both raw form and in sorted or organized formats in the quarterly groundwater reports.
- t. All equipment which is in contact with groundwater, including equipment used to evacuate a well, collect a sample or conduct a slug test, shall be constructed of stainless steel or inert materials.
- u. The following information requirements shall be added, if they are not already included, to the Field Log Book:
- i. Detection of immiscible liquids;
 - ii. Order of the collection of samples;

- iii. Internal temperature of field and shipping containers;
 - iv. Weather conditions;
 - v. Static water level;
 - vi. Parameters; and
 - vii. Purging procedures and equipment.
- v. The following information requirements shall be added, if they are not already included, to the chain of custody forms:
- i. Total number of containers;
 - ii. Signature of collector;
 - iii. Inclusive date and times of possession;
 - iv. Internal temperature when packing; and
 - v. Internal temperature upon arrival.
- w. Samples shall be analyzed using SW-846 methods with detection limits at least as low as the PQLs listed for the particular method in 35 IAC 724 Appendix I.
- x. Decontamination procedures shall be in accordance with the RCRA Ground-Water Monitoring: DRAFT Technical Guidance, November 1992 (EPA/530-R-93-001) and are as follows:
- 1. The following cleaning procedure shall be used when organic constituents are the analytes of interest [If acetone, hexane or methanol are analytes of interest, a different solvent (which is not a target analyte) should be chosen (e.g., isopropanol).]:
 - a. Wash the equipment with a nonphosphate detergent.
 - b. Rinse the equipment with tap water.
 - c. Rinse the equipment with pesticide-grade hexane or methanol (methyl alcohol).
 - d. Rinse the equipment with reagent grade acetone.
 - e. Rinse the equipment with organic-free reagent water.

2. The following cleaning procedure shall be used when inorganic constituents are the analytes of interest:
 - a. Wash the equipment with a nonphosphate detergent.
 - b. Rinse the equipment with tap water.
 - c. Rinse the equipment with dilute (0.1N) hydrochloric acid.
 - d. Rinse the equipment with reagent water.
 3. If potable water is used as the last step in any decontamination, the sampling/purging equipment must be further rinsed with distilled/deionized water or an analysis of the potable water must be included with the groundwater sampling results.
- y. Monitoring well construction shall conform to the Agency Monitoring Well Construction diagram attached.
23. This letter shall serve as final Agency action on the subject submittal. As such, this action is subject to the appeal provisions of Sections 39 and 40 of the Illinois Environmental Protection Act.

Should you have any questions regarding this matter, please contact Michael A. Heaton at 217/524-3312 or Heather K. Young at 217/524-3290.

Very truly yours,


Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

LWE:MH:sf/sp/634Y,1-14
JCH

Attachments: RFI Phase I Certification
RFI Phase I Laboratory Certification Statement
Agency Monitoring Well Construction Diagram
Well Completion Forms
Attachment 7

cc: USEPA Region V -- George Hamper (w/o att.) ✓



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MAY 04 1993

IEPA - BOL
PERMIT SECTION

April 30, 1993

Mr. Lawrence W. Eastep, P.E.
Permit Section Manager
Illinois Environmental Protection Agency
Division of Land Pollution Control
Bureau of Land
P.O. Box 19276
2200 Churchill Road
Springfield, Illinois 62794-9276

Re: 0316000053 -- Cook County
Safety-Kleen Corp - Chicago Recycle Center
USEPA ILD NO. 005450697
RCRA Part B Permit - Phase I RCRA Facility Investigation

Dear Mr. Eastep:

Enclosed are the original and three bound copies of the Phase I RCRA Facility Investigation Workplan for the Safety-Kleen Chicago Recycle Center (CRC). The Workplan is submitted for your review and approval in accordance with the requirements of Sections III.I and IV.B of the RCRA Hazardous Waste Management Part B permit for the CRC. To facilitate your review of the Workplan, I've also enclosed an outline identifying the sections of the Workplan that address each of the specific permit requirements.

If you have any questions concerning the Workplan, please contact me at (708) 468-2216.

Sincerely,

Scott Davies
Senior Project Manager
Remediation

Enclosures

The following outline has been prepared to facilitate the IEPA's review of the Phase I RFI Workplan (the Workplan) for the Safety-Kleen CRC for administrative completeness. The outline presents the requirements for the RFI workplan, as presented in the CRC's RCRA Part B permit, Attachment G, Section III and also identifies the parts of the Workplan which address those requirements. In some cases, the specific requirements of the permit were not directly applicable to the of the facility SWMUs that are being addressed. In those cases, brief explanations are provided as to why Safety-Kleen believes the item is not applicable.

A. Facility Background

1. Delineate extent and construction of SWMUs.
See Section 2.3 of the Workplan
2. Describe the history of utilization of the SWMUs and the surrounding areas.
See Section 2.3 of the Workplan
3. Describe all materials managed and or stored at the SWMUs.
See Section 2.2 of the Workplan
4. Describe all significant surface features (incl. ponds, streams, depressions, etc.) and wells within 1500 feet of the facility.
See Section 2.4 of the Workplan
5. Describe all land usage within 1500 feet of the facility, including SWMUs.
See Section 2.4 of the Workplan
6. Describe all human populations and environmental systems susceptible to contaminant exposure within 1500 feet.
See Section 2.4 of the Workplan
7. Describe any interim corrective action measures which were or are being planned or undertaken at the facility.
See Section 2.3 of the Workplan
8. Present a history and description of past and present ownership and operation of solid and hazardous waste generation, storage, treatment, or disposal activities at the facility.
See Section 2.2 of the Workplan
9. Present approximate dates or periods of past spills or releases, identification of materials spilled, amount spilled, location, and describe response actions, including inspection or technical reports generated as a result.
See Section 2.3 of the Workplan

B. Site Map

Map will include (with coverage within a 1500' radius around SWMU area):

1. Map scale, north arrow, date, and location of facility with respect to township, range, and section.
2. Topography and surface drainage, waterways, wetlands, 100 year floodplains, surface water.
3. Property lines with adjacent property owners labeled.
4. Surrounding land use.
5. Locations and boundaries of all SWMUs and HWMUs, past and present.
6. Injection and withdrawal wells
7. All buildings, tanks, piles, utilities, paved areas, easements, rights-of way, and other features including past and present underground storage tanks and piping.

The site map, in conformance with the above requirements where applicable, is presented as Workplan Figure 2.

C. Nature and Extent of Chemical Impacts

1. Possible Source Areas of Chemical Impacts, including:
 - a. Location of unit/area
 - b. Quantities of solid or hazardous wastes
 - c. Hazardous wastes and/or hazardous constituents
 - d. Identification of additional information needed

Possible source areas of chemical impacts are addressed in Section 3.1 of the Workplan. Additional information requirements will be addressed by the Workplan investigative tasks.

2. Degree and Extent of Chemical Impacts, including:
 - a. Available monitoring well data and qualitative information on impacts
 - b. Potential migration pathways

Degree and extent of chemical impacts are addressed in Section 3.2 of the Workplan.

D. Administrative Outline

1. General outline of objectives, tasks, and scheduling. Includes budget and personnel. *See Section 4.1 & 4.2 of the Workplan.*

2. Project Management Plan

The Project Management Plan is presented as Section 4.3 of the Workplan.

E. Site-Specific Sampling Plans - Phase I and Phase II

1. Soils Investigation

- a. The Phase I Workplan must provide for a determination of the presence or absence of releases to the soil under and around the SWMUs, including:
 1. Soil description
 1. United Soil Classification
 2. Soil Profile
 3. Elevation of Water Table
 2. Parameters and hazardous constituents (to be used to determine the presence or absence of a plume of contamination)
 3. Basis for selecting the parameters in 2.
 4. Methodology for choosing locations, depths, and number of samples
 5. Sampling procedures
 6. Analytical methods
 7. Procedures and criteria for evaluating analytical results

See Sections 5.1 and 5.2.1 of the Workplan for discussion of preliminary soil sampling. Specific sampling procedures are provided in the QAPP.

- b. If determined from Phase I investigation that a release has occurred, a Phase II Workplan shall be submitted, addressing:
 1. Known information about the horizontal and vertical extent of impacts
 2. Description of constituent and soil chemical properties
 3. Specific constituent concentrations
 4. Velocity and concentration of constituent movement (if known)
 5. Extrapolation of future constituent movement (if known)
 6. Methods and criteria to be used to define plume boundaries

Even though not required for this Phase I Workplan, a portion of these requirements have been addressed in the Workplan. The scope of the proposed Workplan goes beyond the requirements of the Phase I Workplan, in order to expand on previous investigatory data collected in the SWMU areas during the closure of Tanks T-190 through T-193. Preliminary data gathering for characterization of the nature and extent of chemical impacts and for estimating constituent movement is discussed in Section 5.1, 5.2.1, 5.2.2, 5.2.3, 5.2.4.

2. Hydrogeologic and Hydrologic Investigation - Phase II sampling plan

- a. A plan for evaluating groundwater flow patterns shall be designed to provide the following:
 1. Description of regional geologic/hydrogeologic characteristics
 2. Analysis of topographic & geomorphic features
 3. Classification and description of hydrogeologic properties of hydrogeologic units at the site down to first bedrock aquitard
 4. Isopach and contour maps of the facility, and two (min.) geologic cross sections.
 5. Description of water level or fluid pressure monitoring
 6. Description of any man-made influences affecting hydrogeology at the site
- b. Installation of monitoring wells and sampling of monitoring wells shall be

carried out in accordance with the QAPP.

1. Groundwater monitoring system
 2. Background monitoring wells
 3. Downgradient wells
- c. Sampling Plan must specify:
1. Parameters and constituents
 2. Basis for selecting parameters and constituents
 3. Methodology for hydrostratigraphic investigation
 4. Sampling procedures
 5. Analytical methods
 6. Procedures and criteria for evaluating data
 7. Description of methods to delineate the plume extent (if any)

As stated above, these items, required for the Phase II Workplan, are not required for Phase I and are not addressed in their entirety in the Phase I Workplan. Some work elements proposed in the Phase I Workplan will, however, provide data to partially satisfy the Phase II objectives of characterizing the nature and extent of releases, if any.

4. Air Investigation

- a. The Phase I workplan must provide for characterization of constituents impacting air quality
 1. Description of horizontal and vertical direction and velocity of chemical movement
 2. Rate and amount of release
 3. Chemical and physical composition of the chemicals released, including horizontal and vertical concentration profiles.
- b. The Phase I Workplan must provide for characterization of the climate, including:
 1. Meteorological information
 - a. Annual and monthly rainfall averages
 - b. Monthly temperature averages and extremes
 - c. Wind speed and direction
 - d. Relative humidity and dewpoint
 - e. Atmospheric pressure
 - f. Evaporation data
 - g. Development of inversions
 - h. Climate extremes and frequency of occurrence
 2. Topographic features
 - a. Ridges, hills, or mountain areas
 - b. Canyons or valleys
 - c. Surface water bodies
 - d. Wind breaks and forests
 - e. Buildings
 - f. Other man-made features

All items related to air quality are addressed in Section 5.2.6. Screening calculations have been completed to assess the air quality impacts of atmospheric releases from the

SWMUs. Release rates for volatile organic compounds have been estimated which show no significant threat to human health and the environment. The calculations were based on USEPA methods and results were compared with USEPA air model estimates for the CRC. In addition, the SWMUs are located at a hazardous waste processing facility in an urban industrial area. For these reasons, it is unlikely that a detailed air quality investigation addressing the items listed in the permit is necessary.

5. Source characterization

The Phase I Workplan must provide for the collection of data to characterize hazardous wastes and/or hazardous constituents and the areas where they have been released, placed, collected and or removed, including the following information:

- a. Unit/Disposal Area characteristics
 1. Location
 2. Type
 3. Design features
 4. Operating practices (past and present)
 5. Period of operation
 6. Age
 7. General physical conditions
 8. Structural integrity
 9. Method used to close unit

Since the SWMU area is essentially an open area of land and not a constructed unit or process area, the items listed in this part of the permit for source characterization are not applicable to the Phase I Workplan for the CRC.

- b. Waste or Hazardous Constituent characteristics
 1. Type
 - a. Source
 - b. Hazardous classification
 - c. Quantity
 - d. Chemical composition
 2. Physical and Chemical characteristics
 - a. Physical form
 - b. Physical description
 - c. Temperature
 - d. pH
 - e. General chemical class (e.g. acid, solvent)
 - f. Molecular weight
 - g. Density
 - h. Boiling point
 - i. Viscosity
 - j. Solubility in water
 - k. Cohesiveness of the waste
 - l. Vapor pressure
 - m. Flash point

3. Migration and Dispersal characteristics

- a. Sorption
- b. Biodegradability, bioconcentration
- c. Photodegradation rates
- d. Hydrolysis rates
- e. Chemical transformations

The permit explicitly addresses each of these items identifying those that are applicable for the CRC. Hazardous constituent characteristics will be compiled where available, upon completion of the Phase I RFI, for chemicals which are confirmed to have been released to the SWMUs.

c. Human Use of, or access to, the facility

- 1. Recreation
- 2. Agriculture
- 3. Residential

The facility is a licensed hazardous waste treatment and storage facility and, as such, is used solely for that purpose. All human use of, or access to, the facility is related to hazardous waste operations and the facility maintains compliance with all applicable state and federal regulations pertaining to the protection of human health at such facilities. All items related to source characterization are addressed in Section 5.2.7

6. Potential Receptors

The Phase I Workplan must provide for collection of data describing the human populations and environmental systems within a radius of 1500 feet of the facility, including:

- a. Local uses and possible future uses of groundwater
 - 1. Type of use
 - 2. Location of users, including wells and discharge areas
- b. Local uses and possible future uses of surface waters draining the facility
 - 1. Domestic and municipal
 - 2. Recreational
 - 3. Agricultural
 - 4. Industrial and Commercial
 - 5. Zoning
 - 6. Location between population locations and prevailing wind direction
- c. Demographic profile of people that have access to the facility
(age, sex, sensitive subgroups)
- d. Endangered or threatened species

All applicable items related to description of potential receptors are addressed in Section 5.2.8. Item 6b is not applicable because there are no surface waters in the vicinity of the SWMUs. For reasons provided in response to 5c, item 6c is also not applicable.

F. Data Collection Quality Assurance

All items related to data collection quality assurance are addressed in the Quality Assurance Project Plan (QAPP).

G. Data Management Plan

A Data Management Plan will be submitted with the Phase I Workplan, which will address documentation and tracking of investigation results. The information addressed will include:

1. Data record, including:
 - a. Sample code
 - b. Sample location and type
 - c. Sample raw data
 - d. Lab ID number
 - e. Property or constituent measured
 - f. Results of analysis
2. Tabular displays (as necessary), showing
 - a. Raw data
 - b. Results for each medium and constituent
 - c. Statistical analysis
 - d. Data sorted by potential stratification factors
 - e. Summary data
3. Graphical displays (as necessary), showing
 - a. Sampling location(s)
 - b. Boundaries of sampling area
 - c. Chemical concentrations at each location
 - d. Extent of impacts
 - e. Changes in concentrations
 - f. Features affecting transport

Each of these items related to data management are included in the Data Management Plan.

H. Implementation of Interim Measures

The permittee will document and submit information on any interim measures which have been or are to be undertaken to abate threats to human health or the environment, while the Phase I RFI is being completed.

It is not anticipated at this time that interim measures will be conducted for the SWMUs during the course of the Phase I RFI, since no immediate threats to human health or the environment are believed to exist. Possible interim measures related to the closure of tanks adjacent to the SWMUs are provided in Section 3.2.2.

I. Health and Safety Plan

Under the provisions of 29 CFR 1910, OSHA Hazardous Waste Operations and Emergency Response Standards must be met. The Health and Safety Plan must describe how these standards will be met.

All items related to health and safety are addressed in the Health and Safety Plan.